

**Montana  
Statewide Angling  
Pressure  
2017**

**Summary Report**



# Angler Pressure 2017 Summary Report

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## 1.0 INTRODUCTION

Montana Fish, Wildlife and Parks has conducted statewide angling mail surveys for more than 50 years. Bishop (1959, 1960, 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana from 1958-1960. In 1968 Holton (1970) again initiated the statewide angling pressure mail survey. Holton (1971) conducted another statewide survey for the 1969 license year. No results were reported because it was felt they were too high due to sampling problems. In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. An attempt was made to continue that statewide survey in 1976 using the 1975 mailing lists. This did not provide adequate samples for nonresidents, so only resident pressure was obtained. The surveys were started again in 1982 and run for four consecutive years (McFarland, 1989). In 1986 the surveys were again canceled for lack of funding. In March 1989, the statewide angling use mail survey was again reinitiated, and has been conducted on a biennial basis since that time.

The number of questionnaires in the survey has varied over the years. Between 1989 and 2011, the number has been in the range of 89,000-97,000 for all but two surveys (68,505 in 2001 and 80,125 in 2005). In 2013, the effort was scaled back to 67,603 questionnaires, a drop of 25 % from 2011. The 2015 survey effort was 67,600 questionnaires, the same as 2013. In 2017 the survey was again scaled back due to budget cuts. A total of 40,300 surveys were mailed out in 2017, a 40% cut over 2015. The consequence of this change is that it increases error measurements for waters, and decreases the number of waters for which a pressure estimate can be calculated.

In the current survey there have been changes made to the maps that accompany the questionnaire, and this is worthy of mention because it has the potential to influence the angler response, and ultimately angler pressure estimates. The Missouri River, the Yellowstone River, and the Clark Fork River maps underwent changes in order to present a single map for each of these waters. In order to accomplish this, several smaller maps (Big Hole River, Bighorn River, Blackfoot River, Smith River, Stillwater River and Beaver Creek) were moved to the front page of the survey letter along with a note to let anglers know that there were more maps on the back side. Big Spring Creek was added while The Bitterroot River and the Gallatin River were not included in 2017. When there is no map the nearest town or landmark is used to determine which section of the river was fished when the respondent does not include the section.

- 1) Missouri River: In 2017, the two Missouri River maps from 2015 were combined and placed on the back page of the survey. This was done to avoid the confusion relative to the upstream boundary of section 8, because in 2015 section 8 from the Cascade Bridge to the North Dakota border was on the back of the survey and the rest of the river was on the front side. The goal in 2017 was to allow respondents to see the entire length of the Missouri River (along with additional fishing access

sites that are frequently used by anglers) so that they might more confidently select the sections fished. Many anglers are confused by the sections and the reservoirs – they enter a reservoir name as well as a section which might skew some of the data towards the reservoirs.

- 2) Yellowstone River: On the 2015 back map page, the Yellowstone River map included section 2 and section 1 to the North Dakota border. All other sections were on the front of the survey. The two Yellowstone Rivers maps from 2015 were combined and placed on the back page of the 2017 survey so that respondents could see the entire length of the river in one place. The 2017 map includes the major towns as well as many of the FWP Fishing Access Sites (FAS) that anglers might use. The hope was that it would be easier for anglers to identify a landmark within the section they were fishing.
- 3) Clark Fork River: Several of the dams and reservoirs in the lower Clark Fork River were shown on the 2015 map. In order to fit this in the space available, the river was displayed in 2 maps. In years prior to 2015, the map ended the Clark Fork River at Thompson Falls. Because the reservoirs were labeled on the 2015 map, there might have been more activity identified with these reservoirs than in the past. The 2015 Lower Clark Fork map was expanded and combined with the Upper map for the 2017 survey. Numerous fishing access sites (FAS) were also labeled to provide landmarks that anglers might easily recognize.

Contents of the questionnaire changed slightly in 2017. Questions regarding Fishing Access Site (FAS) use was included again in this survey and the type of fishing (shore, boat, both or ice) question from the 2013 (and all prior) survey was once again included. The primary purpose of the FAS question was to quantify the percentage of anglers who use FASs to access waterbodies.

## **2.0 METHODS**

### **2.1 MAIL SURVEYS**

The 2017 statewide angling mail pressure survey was conducted during the license year beginning March 2017 and ending February 2018. The methods used by R. McFarland for surveys conducted from 1989 through 2009 provided the framework for the 2017 survey.

Samples were drawn from the Department's Automated Licensing System (ALS) on the first day of each month. All anglers who purchased a two-day or ten-day license valid for use in the previous month as well as all anglers who purchased or held a season fishing license valid for use in the previous month were included in the eligible angler population. A computer program was written in ORACLE to create five populations of anglers from which to draw samples. A resident season population, a resident 2-day population, a nonresident season population, a nonresident 2-day population and a nonresident 10-day population were created each month. The licenses that comprise these five populations of anglers are:

1. NonResident 2-day license: enables the nonresident angler to fish for two consecutive days of their choice. Anglers may purchase as many two-day licenses as they want.
2. NonResident 10-day license: enables the nonresident angler to fish for 10 consecutive days of fishing. Anglers may purchase as many ten-day licenses as they want.
3. NonResident Season license includes:
  - combo license - combines a nonresident conservation license and seasonal fishing license.
  - seasonal license
  - deer combo license - includes a deer tag and a fishing license.
  - big game combo - includes a conservation license, an elk tag, a deer "A" tag, a black bear tag, a fishing license and an upland game bird license.
4. Resident 2-day license: valid for 2 consecutive days at a reduced cost.
5. Resident Season license includes:
  - season license
  - combo license - combines a season fishing license and a conservation license
  - sportsman's license - provides a deer "A" tag, elk tag, optional bear tag, conservation license, a game bird stamp and a fishing license
  - "senior" license - 62 years of age and older
  - "youth" license - ages 12 to 17
  - disabled license - certified as permanently and substantially disabled

An ACCESS table was used to pull a random sample from each population. Sampling was done on a monthly-stratified basis (Table 1). The number pulled from each population was proportionally derived from the angling pressure each population exerted based on previous surveys. A 25/75 ratio to sample non-resident and resident anglers was used in the current survey--the same ratio that has been used since 2007 as reported by McFarland (2009) who found that residents provide approximately 75% of angling pressure. This will be re-evaluated for the 2019-2020 survey, because the nonresident portion of pressure has been rising since this ratio was established and is now at 38% for this current survey.

The individual samples from each population (by month) were assigned to a wave (Table 1) and given sequential serial numbers. The database of names and addresses were run through a software program (a service provided by Print & Mail Service in Helena) to validate addresses and assign correct 4-digit zip code extensions. Only addresses that passed the mail validation were included in the final sample. This helped reduce the number of non-deliverable surveys. An ACCESS report was written to export the monthly sample data into a spreadsheet for mail merging with the survey WORD document. The merged file contained a single page for each angler included in the sample. This merged file and a separate map file were sent to Print & Mail Services (State of Montana) in Helena, MT where the survey was printed (two-sided), stuffed into envelopes and mailed via first class mail.

**Table 1. Period-of-time covered for waves for the 2017-2018 Statewide angling survey.**

<b>Wave</b>	<b>Time Period Covered</b>	<b>Season Designation</b>
1	March 2017	Winter
2	April	Winter
3	May	Summer
4	June	Summer
5	July	Summer
6	August	Summer
7	September	Summer
8	October	Winter
9	November	Winter
10	December	Winter
11	January 2018	Winter
12	February	Winter

The sample size for the 2017 survey started the same as the 2015 survey but was cut in half from June on due to budget constraints. Actual numbers of questionnaires sent varied slightly from wave to wave (Table 2). For the "summer" waves (3), 8,400 residents and nonresidents and (4 through 7), 4,200 residents and nonresidents were sampled each month. In the "winter" waves (8 through 12), the rate dropped to 2,100 residents and

nonresidents. Because waves 1 and 2 had fewer license holders from which to sample, these two waves were sampled at a less intense level.

A single questionnaire was used for all groups. The questionnaire (see Section 6.0 for an example), included questions on: what water was fished; nearest landmark or town; section of stream or river fished (taken from maps on the front survey page and the map page on the back of the survey); number of days fished; number of days fished at an FAS and the name(s) of the FAS; the one fish species they were primarily fishing for. The question on FAS use (new in 2015) was retained in the 2017 survey. The type of fishing (shore, boat, ice or a combination) was reinstated in the 2017 survey following its removal in 2015.

To ease the sorting process different colored forms were used for each wave as well as for initial and remail mailings. Surveys were mailed “first class pre-sort” for all the waves.

<b>Table 2. Number of questionnaires sent for each wave by residency for the 2017 license year.</b>								
Wave	Mailed		Useable (mailed minus undeliverable)		Returns (initial and remail)		Return Rate Percentage	
	Res	Nonres	Res	Nonres	Res	Nonres	Res	Nonres
01	300	100	293	92	129	39	44.03%	42.39%
02	3150	1050	3050	1004	1350	373	44.26%	37.15%
03	6300	2100	6020	2001	2417	773	40.15%	38.63%
04	3150	1050	2984	1003	1204	389	40.35%	38.78%
05	3150	1050	2976	1000	1107	360	37.21%	36.00%
06	3150	1050	2985	1004	1205	364	40.37%	36.25%
07	3150	1050	2995	1004	1188	388	39.67%	38.65%
08	1575	525	1499	507	644	189	42.96%	37.28%
09	1575	525	1491	490	615	173	41.25%	35.31%
10	1575	525	1493	496	553	189	37.04%	38.10%
11	1575	525	1503	500	660	199	43.91%	39.80%
12	1575	525	1494	496	667	175	44.65%	35.28%

Remail questionnaires were mailed to those individuals who had not yet responded, from four to six weeks after the initial mailing. Returns for each wave were monitored and when they slowed down to a few each day the remail was sent. Included on the remail survey was a note explaining that we hadn't received their survey yet but if they had sent one in and our mail crossed paths, to please disregard this second request (see Section 6.0 for survey examples). Returns were grouped and counted according to type of license (residency), wave and mailing (initial or remail). Surveys returned as undeliverable were subtracted from the sample size.

Returned questionnaires were sorted into those that had fished in Montana during the period in question and those that had not. The "yes" respondents were keyed into an Access database using forms and lookup fields. A record was entered for each stream or lake fished. Both the stream or lake name and the nearest town or landmark was entered for each record. These data were used to identify a specific watercode for each record. Edits were run to correct invalid water codes and data out of normal ranges.

Phone surveys have been used in the past for the purpose of determining nonresponse bias associated with the mail surveys and for making adjustments to pressure estimates accordingly. The most recent phone survey was conducted in 1997. It showed no statistically significant difference in response rate between the phone and mail surveys. No phone surveys were conducted in 2017, so it was assumed that there was no nonresponse bias and no adjustment necessary.

Fishing pressure estimates were made for individual waters based upon the formula:

$$P_j = \sum_{i=1}^n \left[ \frac{E_{ij} * D_{ij}}{R_{ij}} \right] * A_{ij}$$

where  $P_j$  = Pressure for an individual water by the  $j^{\text{th}}$  residency

$E_{ij}$  = Number of eligible anglers for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$D_{ij}$  = Days fished that particular water for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$R_{ij}$  = Number of respondents from the survey for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$A_{ij}$  = Adjustment factor for non-response for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$n$  = number of waves in the estimate year or season

$j$  = number of residency types (resident, nonresident, or total)

The variance was then calculated using:

$$VAR(P_j) = \sum_{i=1}^n \left[ \frac{E_{ij}^2 * VAR(D_{ij})}{R_{ij}} \right] * A_{ij}^2$$

where  $P_j$ ,  $E_{ij}$ ,  $R_{ij}$ ,  $D_{ij}$ , and  $A_{ij}$  are the same as above.

Pressure estimates between waves and residency were assumed to be independent so variances were summed to obtain total variances. The square root of the variance was taken and this number was reported as the error for fishing pressure.

## **3.0 RESULTS**

### **3.1 ANGLER PRESSURE ESTIMATES ANNUAL (MARCH 2017-FEBRUARY 2018)**

Licensed anglers fishing on Montana waters were estimated to have exerted 3,208,350 angler days of pressure for the 2017 license year (Table 3). Residents accounted for 2,002,833 angler days (62%) and nonresidents made up the remaining 1,205,517 angler days (38%). Estimates for individual waters were sorted alphabetically and are presented in Appendix A of this report.

The distribution of angler pressure among Fish, Wildlife and Parks regions (Figure 1) is heavily skewed toward the western and central portions of the state (Chart 1). Region 3 received the most angling pressure with 843,232 angler days (26.3%), followed closely by Region 4 with 698,490 angler days (21.7%). Regions 2, 5 and 1 were next in order and close to each other, with 511,618 (15.9%), 439,263 (13.7%), and 398,769 (12.4%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 197,882 (6.2%) and 106,404 (3.3%) angler days respectively.

Residents (Chart 1) exerted the majority of angling pressure in 2017 in all regions but Region 3. The percent of angling pressure by residents for each region was: Region 1 – 72.6%, Region 2 – 64.1%, Region 3 – 42.3%, Region 4 – 78.1%, Region 5 – 56.5%, Region 6 – 70.6%, and Region 7 – 81%. July (wave 5) was, overall, the peak fishing period, while March (wave 1) was the least fished period during the year (Table 4). Residents fished the most in July (wave 5) and nonresidents also fished the most during July (wave 5). Residents fished least in February (wave 12) while nonresidents fished least in March (wave 1).

Angling on lotic waters (streams/rivers) accounted for 65.2% (2,093,431 angler days) of the statewide pressure while lentic waters (lakes/ponds/reservoirs) accounted for 34.2% (1,098,427 angler days) of the pressure (Table 3).

Regions 1 and 6 were the two regions in which lake angling pressure exceeded stream pressure (62.5% and 73.2%, respectively from lakes), although the lake pressure in Region 6 was due primarily to angling on one water (Fort Peck Reservoir) (Table 3, Chart 2). Region 4 was relatively balanced between stream and lake angling, although the lake angling pressure in Region 4 was the greatest for any region of the state (349,058 angler days). Regions 2, 3, 5 and 7 were dominated by stream anglers, and while Region 3 had the highest number of stream anglers for any region (700,665 angler days), Region 5 had the highest percentage (87.5%) of anglers that were stream anglers.

**Table 3. Angling Pressure in angler days by Region by Lake or Stream for the survey license year 2017. Trips = Number of days respondents to the mail survey fished on the waterbody.**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Region 1</b>						
Undesig	1,752	10	918	4	834	6
Lake	248,231	1,437	192,988	1,186	55,243	251
Stream	148,786	762	95,629	542	53,157	220
<b>Total:</b>	<b>398,769</b>	<b>2,209</b>	<b>289,535</b>	<b>1,732</b>	<b>109,234</b>	<b>477</b>
<b>Region 2</b>						
Undesig	260	1			260	1
Lake	130,977	660	103,031	549	27,946	111
Stream	380,381	1,950	225,078	1,246	155,303	704
<b>Total:</b>	<b>511,618</b>	<b>2,611</b>	<b>328,109</b>	<b>1,795</b>	<b>183,509</b>	<b>816</b>
<b>Region 3</b>						
Undesig	2,889	12			2,889	12
Lake	139,678	740	68,205	410	71,473	330
Stream	700,665	3,525	288,235	1,652	412,430	1,873
<b>Total:</b>	<b>843,232</b>	<b>4,277</b>	<b>356,440</b>	<b>2,062</b>	<b>486,792</b>	<b>2,215</b>
<b>Region 4</b>						
Undesig	286	1			286	1
Lake	349,058	1,940	316,297	1,787	32,761	153
Stream	349,146	2,122	229,043	1,368	120,103	754
<b>Total:</b>	<b>698,490</b>	<b>4,063</b>	<b>545,340</b>	<b>3,155</b>	<b>153,150</b>	<b>908</b>
<b>Region 5</b>						
Undesig	278	2	68	1	210	1
Lake	54,673	357	45,590	313	9,082	44
Stream	384,312	2,069	202,316	1,159	181,997	910
<b>Total:</b>	<b>439,263</b>	<b>2,428</b>	<b>247,974</b>	<b>1,473</b>	<b>191,289</b>	<b>955</b>
<b>Region 6</b>						
Undesig	88	1	88	1		
Lake	144,784	831	93,335	617	51,449	214
Stream	53,009	365	46,294	326	6,715	39
<b>Total:</b>	<b>197,882</b>	<b>1,197</b>	<b>139,717</b>	<b>944</b>	<b>58,164</b>	<b>253</b>

**Table 3. Angling Pressure in angler days by Region by Lake or Stream for the survey license year 2017 (continued). Trips = Number of days respondents to the mail survey fished on the waterbody.**

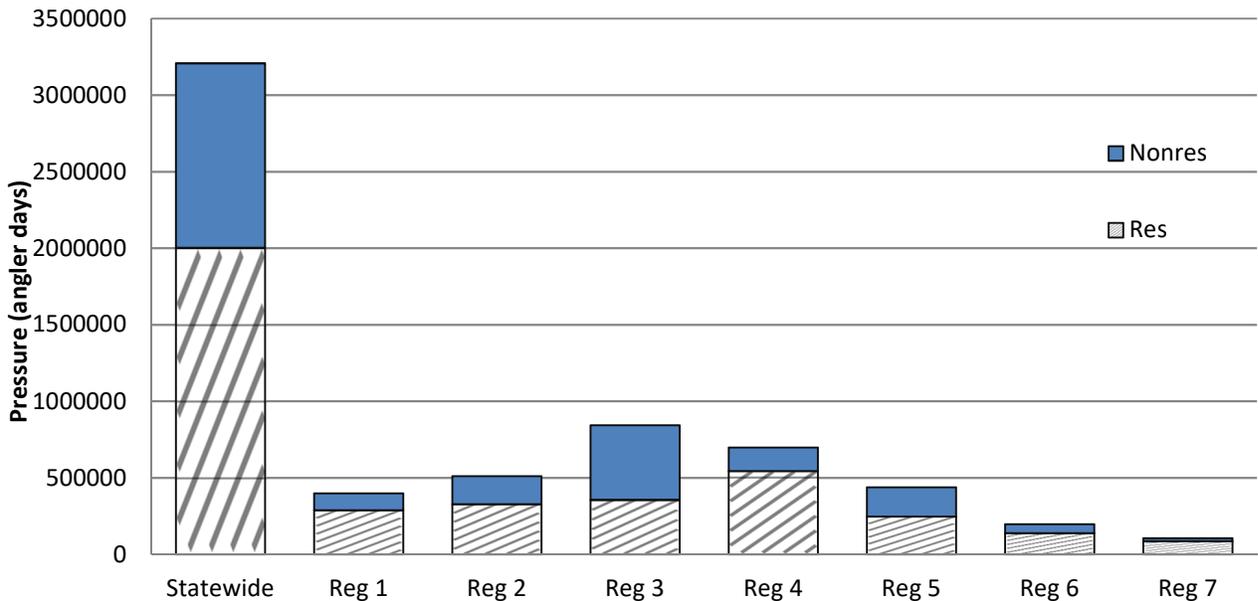
**Region 7**

Lake	29,273	178	17,286	118	11,987	60
Stream	77,131	475	68,915	397	8,216	78
<b>Total:</b>	<b>106,404</b>	<b>653</b>	<b>86,201</b>	<b>515</b>	<b>20,203</b>	<b>138</b>

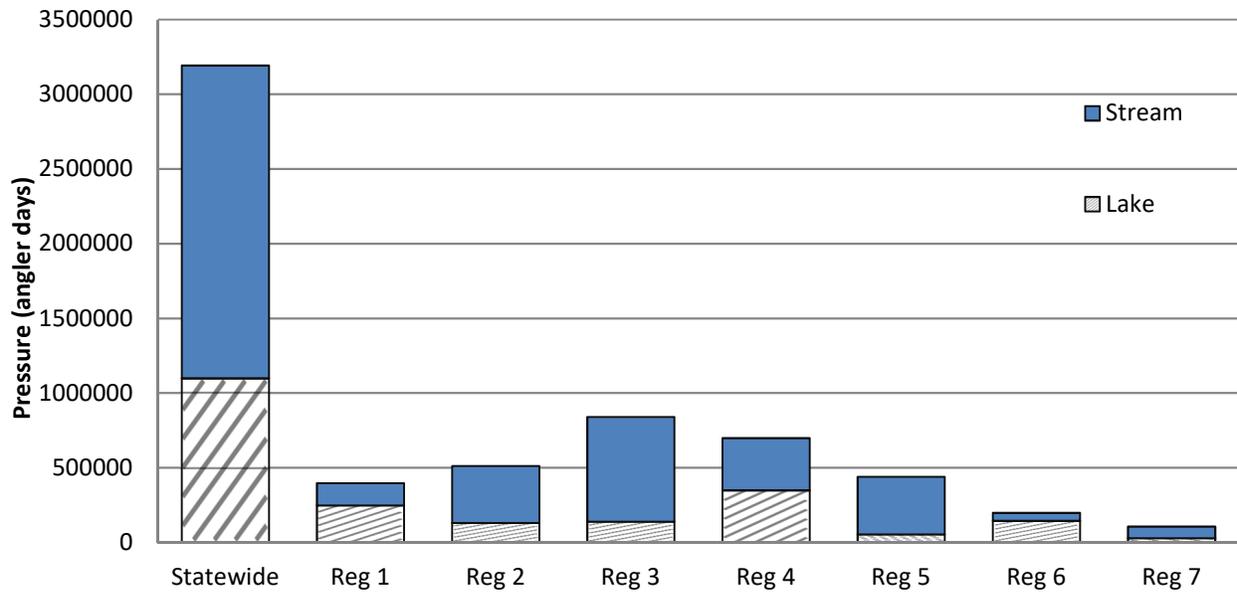
**Statewide Pressure Estimates by Survey License Year 2017**

	----- Totals -----		Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	16,493	89	9,465	54	7,028	35
Lake	1,098,427	6,159	837,859	4,991	260,567	1,168
Stream	2,093,431	11,268	1,155,509	6,690	937,922	4,578
<b>Statewide Total</b>	<b>3,208,350</b>	<b>17,516</b>	<b>2,002,833</b>	<b>11,735</b>	<b>1,205,517</b>	<b>5,781</b>

**Chart 1. Statewide Angling Pressure Comparing Region and Residency 2017-18**



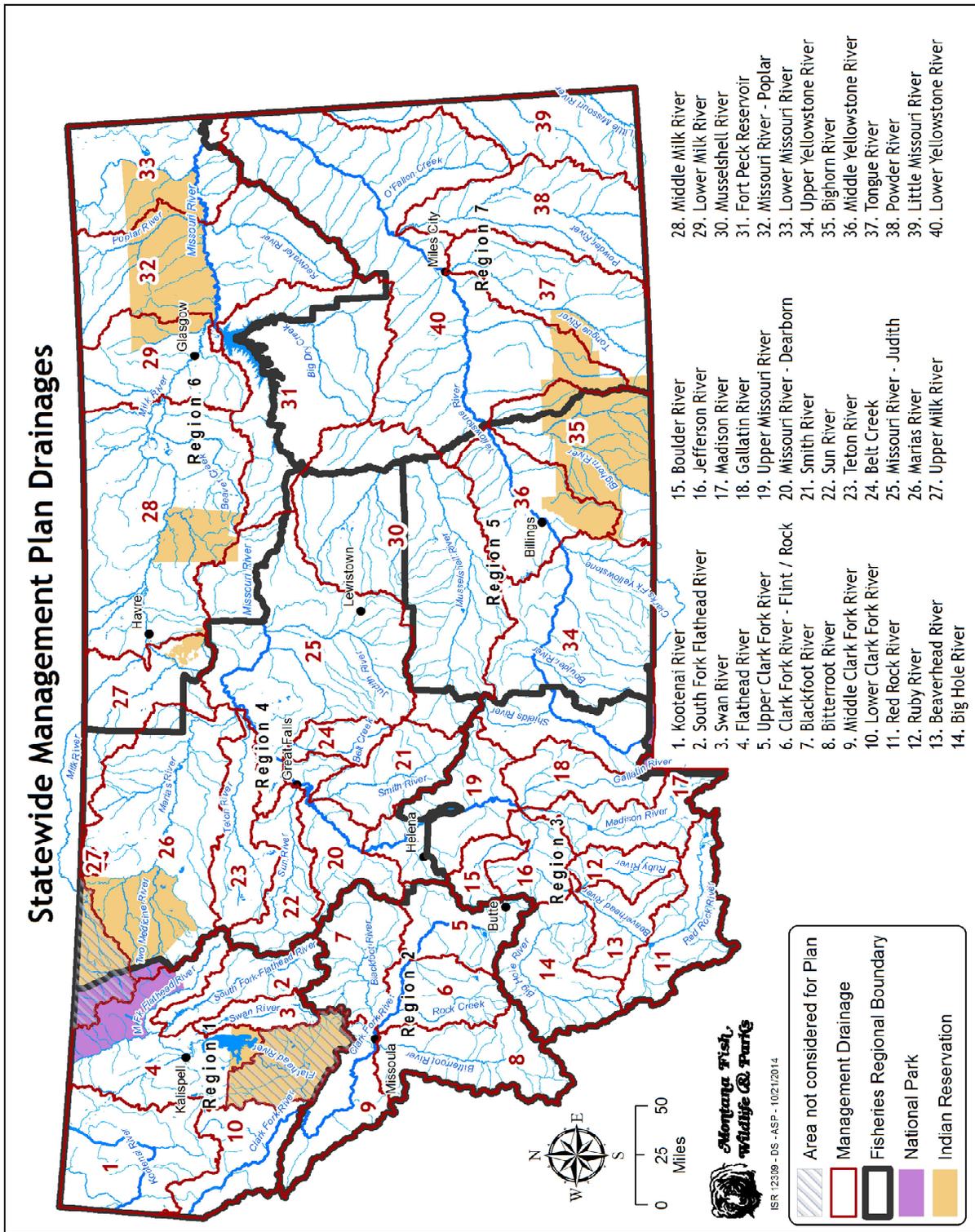
**Chart 2. Statewide Angling Pressure Comparing Region and Water Type 2017-18**



**Table 4. Pressure in angler days by wave for the 2017 survey license year.**

Wave	Month	Total	Resident	Nonresident
01	March	89,562	79,198	10,365
02	April	182,254	125,245	57,010
03	May	268,610	192,033	76,577
04	June	439,829	284,032	155,797
05	July	564,177	347,762	216,415
06	August	542,003	344,445	197,558
07	September	319,655	178,271	141,384
08	October	255,934	143,047	112,887
09	November	148,759	77,268	71,491
10	December	155,725	85,614	70,111
11	January	122,411	79,752	42,659
12	February	119,431	66,169	53,262

Angling pressure was summarized by the 40 major drainages within the state as identified in the 2013 Statewide Fisheries Management Plan (Figure 1, Table 5). The pressure by drainage ranged from a high of 373,093 angler days for the Madison River drainage to a low of 224 angler days for the Little Missouri River drainage. The drainage with the highest percent of resident anglers was the Powder River (100%), while the Bighorn River had the lowest percentage of resident anglers (27%). The Fort Peck Reservoir drainage had the highest percentage of lake anglers (86.6%), mainly due to the influence of Fort Peck Reservoir, while the Beaverhead River had the lowest percentage of lake anglers (less than 1%).



**Figure 1: Statewide Management Plan Drainages**

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017.**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Beaverhead River</b>						
Lake	192	1	192	1		
Stream	25,086	161	7,624	54	17,462	107
<b>Total:</b>	<b>25,278</b>	<b>162</b>	<b>7,816</b>	<b>55</b>	<b>17,462</b>	<b>107</b>
<b>Belt Creek</b>						
Stream	4,449	30	3,015	20	1,433	10
<b>Total:</b>	<b>4,449</b>	<b>30</b>	<b>3,015</b>	<b>20</b>	<b>1,433</b>	<b>10</b>
<b>Big Hole River</b>						
Lake	10,801	57	9,481	51	1,319	6
Stream	108,019	566	51,251	284	56,768	282
<b>Total:</b>	<b>118,820</b>	<b>623</b>	<b>60,732</b>	<b>335</b>	<b>58,087</b>	<b>288</b>
<b>Bighorn River</b>						
Lake	9,495	55	6,148	36	3,347	19
Stream	168,505	907	41,188	221	127,317	686
<b>Total:</b>	<b>178,000</b>	<b>962</b>	<b>47,336</b>	<b>257</b>	<b>130,664</b>	<b>705</b>
<b>Bitterroot River</b>						
Lake	9,663	57	6,171	41	3,492	16
Stream	92,726	516	54,378	319	38,348	197
<b>Total:</b>	<b>102,388</b>	<b>573</b>	<b>60,549</b>	<b>360</b>	<b>41,840</b>	<b>213</b>
<b>Blackfoot River</b>						
Lake	33,714	218	26,980	188	6,734	30
Stream	76,607	382	46,843	256	29,764	126
<b>Total:</b>	<b>110,320</b>	<b>600</b>	<b>73,823</b>	<b>444</b>	<b>36,498</b>	<b>156</b>
<b>Boulder River</b>						
Lake	267	2	267	2		
Stream	3,479	21	2,215	15	1,264	6
<b>Total:</b>	<b>3,746</b>	<b>23</b>	<b>2,482</b>	<b>17</b>	<b>1,264</b>	<b>6</b>
<b>Clark Fork River - Flint / Rock</b>						
Lake	82,329	342	64,894	278	17,434	64
Stream	82,258	407	33,502	196	48,756	211
<b>Total:</b>	<b>164,587</b>	<b>749</b>	<b>98,396</b>	<b>474</b>	<b>66,190</b>	<b>275</b>
<b>Flathead River</b>						
Lake	128,278	711	90,701	538	37,577	173
Stream	60,766	311	40,364	234	20,401	77
<b>Total:</b>	<b>189,044</b>	<b>1,022</b>	<b>131,065</b>	<b>772</b>	<b>57,978</b>	<b>250</b>

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Fort Peck Reservoir</b>						
Lake	108,386	628	65,603	440	42,783	188
Stream	16,746	123	15,625	112	1,122	11
<b>Total:</b>	<b>125,132</b>	<b>751</b>	<b>81,228</b>	<b>552</b>	<b>43,905</b>	<b>199</b>
<b>Gallatin River</b>						
Lake	18,583	96	15,062	82	3,521	14
Stream	112,594	519	58,129	314	54,466	205
<b>Total:</b>	<b>131,177</b>	<b>615</b>	<b>73,191</b>	<b>396</b>	<b>57,987</b>	<b>219</b>
<b>Jefferson River</b>						
Lake	11,866	52	10,697	46	1,169	6
Stream	10,888	68	5,931	46	4,957	22
<b>Total:</b>	<b>22,754</b>	<b>120</b>	<b>16,628</b>	<b>92</b>	<b>6,126</b>	<b>28</b>
<b>Kootenai River</b>						
Lake	49,859	280	40,447	237	9,412	43
Stream	35,088	148	25,401	109	9,686	39
<b>Total:</b>	<b>84,947</b>	<b>428</b>	<b>65,848</b>	<b>346</b>	<b>19,098</b>	<b>82</b>
<b>Little Missouri River</b>						
Lake	224	3	224	3		
<b>Total:</b>	<b>224</b>	<b>3</b>	<b>224</b>	<b>3</b>		
<b>Lower Clark Fork River</b>						
Lake	49,321	312	43,549	288	5,772	24
Stream	31,575	197	18,511	137	13,064	60
<b>Total:</b>	<b>80,896</b>	<b>509</b>	<b>62,060</b>	<b>425</b>	<b>18,836</b>	<b>84</b>
<b>Lower Milk River</b>						
Stream	4,307	22	4,307	22		
<b>Total:</b>	<b>4,307</b>	<b>22</b>	<b>4,307</b>	<b>22</b>		
<b>Lower Missouri River</b>						
Lake	2,996	18	2,996	18		
Stream	2,068	15	1,339	13	730	2
<b>Total:</b>	<b>5,064</b>	<b>33</b>	<b>4,335</b>	<b>31</b>	<b>730</b>	<b>2</b>
<b>Lower Yellowstone River</b>						
Lake	4,632	28	4,632	28		
Stream	63,932	372	58,102	312	5,830	60
<b>Total:</b>	<b>68,564</b>	<b>400</b>	<b>62,734</b>	<b>340</b>	<b>5,830</b>	<b>60</b>

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Madison River</b>						
Lake	66,645	356	14,857	117	51,788	239
Stream	306,448	1,490	93,927	542	212,521	948
<b>Total:</b>	<b>373,093</b>	<b>1,846</b>	<b>108,784</b>	<b>659</b>	<b>264,309</b>	<b>1,187</b>
<b>Marias River</b>						
Lake	24,540	150	23,248	144	1,292	6
Stream	4,082	32	3,662	30	420	2
<b>Total:</b>	<b>28,622</b>	<b>182</b>	<b>26,910</b>	<b>174</b>	<b>1,712</b>	<b>8</b>
<b>Middle Clark Fork River</b>						
Lake	2,727	25	2,441	24	286	1
Stream	106,284	524	72,995	380	33,289	144
<b>Total:</b>	<b>109,011</b>	<b>549</b>	<b>75,436</b>	<b>404</b>	<b>33,575</b>	<b>145</b>
<b>Middle Milk River</b>						
Lake	25,943	139	17,278	113	8,665	26
Stream	12,962	80	12,053	75	909	5
<b>Total:</b>	<b>38,905</b>	<b>219</b>	<b>29,331</b>	<b>188</b>	<b>9,574</b>	<b>31</b>
<b>Middle Yellowstone River</b>						
Lake	7,641	58	7,641	58		
Stream	24,620	165	23,248	158	1,371	7
<b>Total:</b>	<b>32,261</b>	<b>223</b>	<b>30,889</b>	<b>216</b>	<b>1,371</b>	<b>7</b>
<b>Missouri River - Dearborn</b>						
Lake	2,520	22	2,520	22		
Stream	194,868	1,121	110,550	630	84,318	491
<b>Total:</b>	<b>197,388</b>	<b>1,143</b>	<b>113,070</b>	<b>652</b>	<b>84,318</b>	<b>491</b>
<b>Missouri River - Judith</b>						
Lake	11,993	67	11,993	67		
Stream	45,566	263	40,583	235	4,983	28
<b>Total:</b>	<b>57,559</b>	<b>330</b>	<b>52,576</b>	<b>302</b>	<b>4,983</b>	<b>28</b>
<b>Missouri River - Poplar</b>						
Lake	794	5	794	5		
Stream	18,895	120	14,940	99	3,955	21
<b>Total:</b>	<b>19,690</b>	<b>125</b>	<b>15,734</b>	<b>104</b>	<b>3,955</b>	<b>21</b>

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Musselshell River</b>						
Lake	10,705	66	10,571	64	134	2
Stream	5,055	47	4,359	42	696	5
<b>Total:</b>	<b>15,760</b>	<b>113</b>	<b>14,930</b>	<b>106</b>	<b>830</b>	<b>7</b>
<b>Powder River</b>						
Stream	1,314	18	1,314	18		
<b>Total:</b>	<b>1,314</b>	<b>18</b>	<b>1,314</b>	<b>18</b>		
<b>Red Rock River</b>						
Lake	16,404	98	6,605	49	9,799	49
Stream	7,051	41	4,042	20	3,009	21
<b>Total:</b>	<b>23,455</b>	<b>139</b>	<b>10,647</b>	<b>69</b>	<b>12,808</b>	<b>70</b>
<b>Ruby River</b>						
Lake	9,530	44	7,037	35	2,493	9
Stream	10,747	56	4,216	27	6,531	29
<b>Total:</b>	<b>20,278</b>	<b>100</b>	<b>11,253</b>	<b>62</b>	<b>9,024</b>	<b>38</b>
<b>Smith River</b>						
Lake	6,327	38	5,612	36	715	2
Stream	29,608	248	16,037	134	13,571	114
<b>Total:</b>	<b>35,935</b>	<b>286</b>	<b>21,649</b>	<b>170</b>	<b>14,286</b>	<b>116</b>
<b>South Fork Flathead River</b>						
Lake	9,566	59	9,046	57	520	2
Stream	15,634	74	6,744	38	8,891	36
<b>Total:</b>	<b>25,200</b>	<b>133</b>	<b>15,790</b>	<b>95</b>	<b>9,411</b>	<b>38</b>
<b>Sun River</b>						
Lake	19,137	113	16,566	104	2,571	9
Stream	11,831	59	8,263	45	3,569	14
<b>Total:</b>	<b>30,968</b>	<b>172</b>	<b>24,829</b>	<b>149</b>	<b>6,140</b>	<b>23</b>
<b>Swan River</b>						
Lake	10,147	64	8,185	55	1,962	9
Stream	4,250	25	3,134	17	1,115	8
<b>Total:</b>	<b>14,397</b>	<b>89</b>	<b>11,319</b>	<b>72</b>	<b>3,077</b>	<b>17</b>
<b>Teton River</b>						
Lake	1,470	8	1,470	8		
Stream	2,809	14	2,223	11	587	3
<b>Total:</b>	<b>4,280</b>	<b>22</b>	<b>3,693</b>	<b>19</b>	<b>587</b>	<b>3</b>

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Tongue River</b>						
Lake	24,417	147	12,430	87	11,987	60
Stream	11,885	85	9,498	67	2,386	18
<b>Total:</b>	<b>36,301</b>	<b>232</b>	<b>21,928</b>	<b>154</b>	<b>14,373</b>	<b>78</b>
<b>Undesignated R1</b>						
Undesig	1,752	10	918	4	834	6
<b>Total:</b>	<b>1,752</b>	<b>10</b>	<b>918</b>	<b>4</b>	<b>834</b>	<b>6</b>
<b>Undesignated R2</b>						
Undesig	260	1			260	1
<b>Total:</b>	<b>260</b>	<b>1</b>			<b>260</b>	<b>1</b>
<b>Undesignated R3</b>						
Undesig	2,889	12			2,889	12
<b>Total:</b>	<b>2,889</b>	<b>12</b>			<b>2,889</b>	<b>12</b>
<b>Undesignated R4</b>						
Undesig	286	1			286	1
<b>Total:</b>	<b>286</b>	<b>1</b>			<b>286</b>	<b>1</b>
<b>Undesignated R5</b>						
Undesig	278	2	68	1	210	1
<b>Total:</b>	<b>278</b>	<b>2</b>	<b>68</b>	<b>1</b>	<b>210</b>	<b>1</b>
<b>Undesignated R6</b>						
Undesig	88	1	88	1		
<b>Total:</b>	<b>88</b>	<b>1</b>	<b>88</b>	<b>1</b>		
<b>Undesignated Statewide</b>						
Undesig	10,343	59	7,794	45	2,549	14
Lake	1,753	16	1,127	11	627	5
<b>Total:</b>	<b>12,096</b>	<b>75</b>	<b>8,921</b>	<b>56</b>	<b>3,176</b>	<b>19</b>
<b>Undesignated Western District</b>						
Undesig	598	3	598	3		
<b>Total:</b>	<b>598</b>	<b>3</b>	<b>598</b>	<b>3</b>		
<b>Upper Clark Fork River</b>						
Lake	2,353	17	2,353	17		
Stream	22,507	121	17,360	95	5,147	26
<b>Total:</b>	<b>24,860</b>	<b>138</b>	<b>19,713</b>	<b>112</b>	<b>5,147</b>	<b>26</b>
<b>Upper Milk River</b>						
Lake	5,970	40	5,240	38	730	2
Stream	1,358	10	1,358	10		
<b>Total:</b>	<b>7,328</b>	<b>50</b>	<b>6,598</b>	<b>48</b>	<b>730</b>	<b>2</b>

**Table 5. Angling Pressure in angler days by Drainage by Lake or Stream for the survey license year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Upper Missouri River</b>						
Lake	274,483	1,495	247,096	1,362	27,387	133
Stream	63,460	406	50,135	303	13,324	103
<b>Total:</b>	<b>337,943</b>	<b>1,901</b>	<b>297,231</b>	<b>1,665</b>	<b>40,711</b>	<b>236</b>
<b>Upper Yellowstone River</b>						
Lake	39,360	255	32,308	224	7,052	31
Stream	291,629	1,497	185,666	1,043	105,963	454
<b>Total:</b>	<b>330,989</b>	<b>1,752</b>	<b>217,974</b>	<b>1,267</b>	<b>113,015</b>	<b>485</b>

## **3.2 ANGLER PRESSURE ESTIMATES SUMMER (MAY-SEPTEMBER)**

The "summer" season for angling in Montana is considered that period of the year from the first of May through the end of September. In 2017, 2,134,273 (66.5%) days of angling pressure occurred during this period (Table 6). Residents accounted for 1,346,542 angler days (63.1%) and nonresidents made up the remaining 787,732 angler days (36.9%). Estimates for individual waters were sorted alphabetically and are presented in Appendix B of this report. Monthly estimates for all waters are also provided in Appendix D.

The distribution of angler pressure among Fish, Wildlife and Parks regions during summer (Chart 3, Table 6) is heavily skewed toward the western and central portions of the state. Region 3 received the most angling pressure with 588,709 angler days (27.6%), followed closely by Region 4 with 432,509 angler days (20.3%). Regions 2, 5 and 1 were next in order and close to each other, with 332,451 (15.6%), 293,492 (13.7%), and 290,798 (13.6%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 117,904 (5.5%) and 66,399 (3.1%) angler days respectively.

Residents (Chart 3) exerted the majority of angling pressure during the summer season in 2017 in all regions but Region 3. The percent of angling pressure by residents for each region was: Region 1 – 73.1%, Region 2 – 62.6%, Region 3 – 40.9%, Region 4 – 78.4%, Region 5 – 61.4%, Region 6 – 85.6%, and Region 7 – 83.6%.

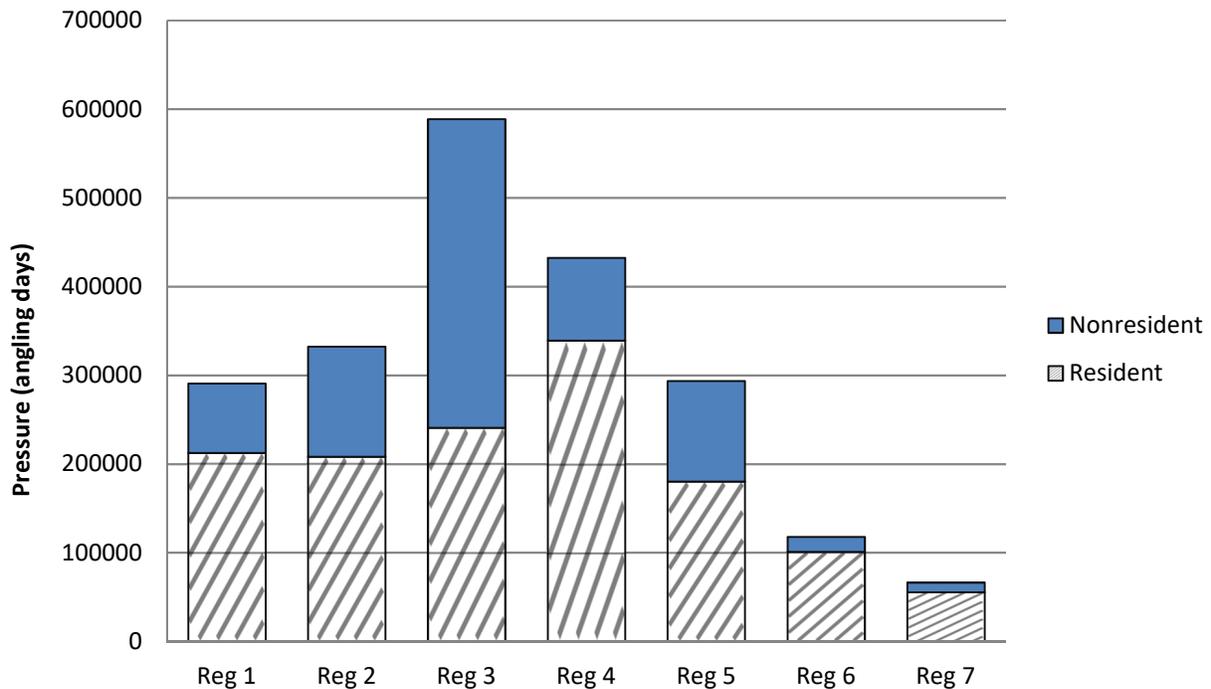
Angling on lotic waters (streams/rivers) accounted for 66.8% (1,415,730 angler days) of the statewide pressure during the summer season while lentic waters (lakes/ponds/reservoirs) accounted for 33.2% (703,922 angler days) of the pressure and undesignated waters accounted for less than 0.07% (1,546 angler days) of the pressure (Table 6).

Regions 1 and 6 were the two regions in which lake angling pressure exceeded stream pressure during the summer season (59% and 67.3%, respectively, from lakes), although the lake pressure in Region 6 was due primarily to angling on one water (Fort Peck Reservoir) (Table 6, Chart 4). Region 4 was relatively balanced between stream and lake angling (49.2 and 50.8%, respectively). Regions 2, 3, 5 and 7 were dominated by stream anglers, and Region 3 had the highest number of stream anglers for any region (488,391 angler days) and the second highest percentage (83.3%) of anglers that were stream anglers (Region 5 had 84.1% but only 246,506 angler days for streams).

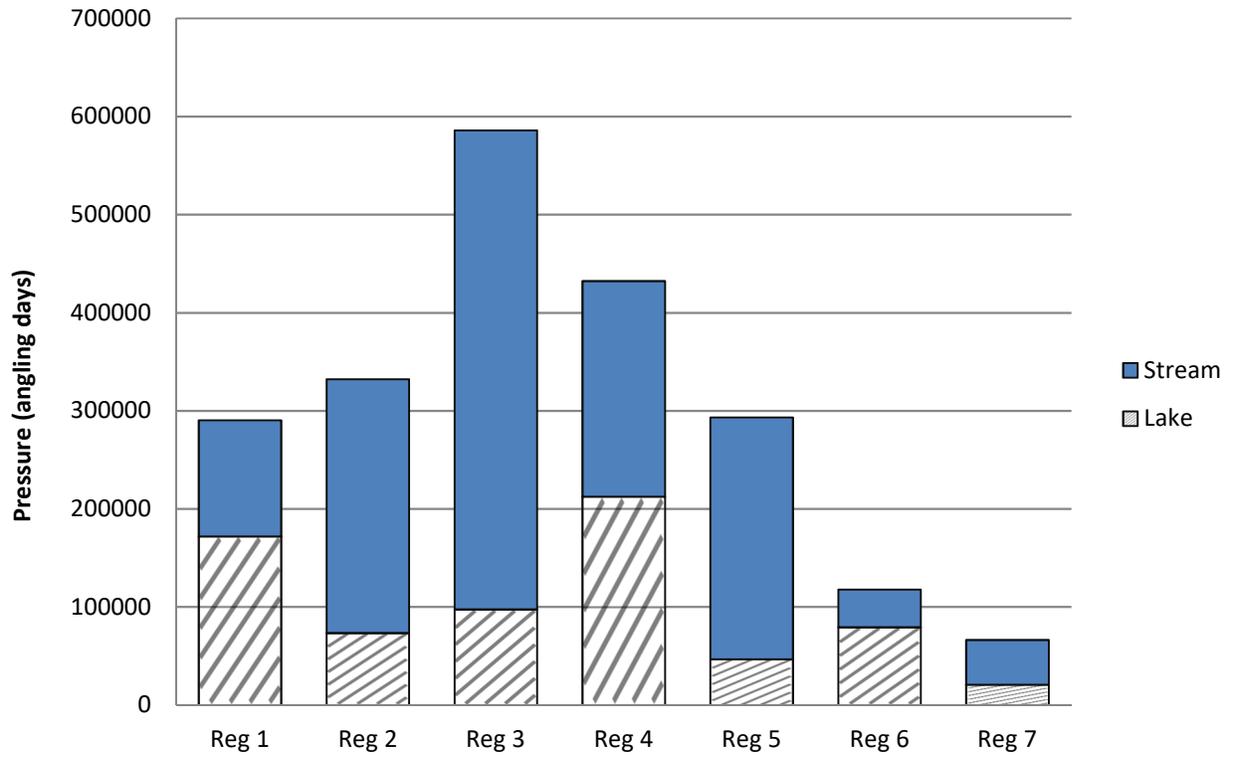
Angling pressure during the summer was summarized within the 40 major drainages (Figure 1, Table 7). The pressure by drainage ranged from a high of 258,294 angler days for the Madison River drainage to a low of 135 angler days for the Little Missouri River drainage. The drainages with the highest percentage of resident anglers were the Little Missouri, Lower Milk River, Lower Missouri River, Powder River and Upper Milk River all at

100%, while the Madison had the lowest percentage of resident anglers (27%). Fort Peck Reservoir had the highest percentage of lake anglers (87.6%) followed closely by the Marias (82.2%), mainly due to the influence of Tiber Reservoir, while the Missouri River-Poplar had the lowest percentage of lake anglers (1.1%) except for the Belt Creek, Lower Milk River and Powder River where there was no lake fishing reported.

**Chart 3. Statewide Angling Pressure Comparing Region and Residency - Summer Months 2017**



**Chart 4. Angling Pressure Comparing Region and Water Type - Summer Months 2017**



**Table 6. Angling Pressure in angler days by Region by Lake or Stream for the summer season of May through September for the survey license year 2017.**

	----- Totals -----	-----	----- Resident -----	-----	----- Non-Resident -----	-----
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Undesignated</b>						
Undesig	10,468	57	8,126	45	2,342	12
Lake	1,546	14	1,127	11	419	3
<b>Total:</b>	12,014	71	9,253	56	2,761	15
<b>Region 1</b>						
Undesig	546	3	546	3		
Lake	171,980	1,128	135,915	939	36,066	189
Stream	118,271	647	76,119	462	42,152	185
<b>Total:</b>	290,798	1,778	212,580	1,404	78,218	374
<b>Region 2</b>						
Undesig	260	1			260	1
Lake	73,586	486	62,385	426	11,201	60
Stream	258,604	1,399	145,750	906	112,854	493
<b>Total:</b>	332,451	1,886	208,135	1,332	124,315	554
<b>Region 3</b>						
Undesig	2,785	11			2,785	11
Lake	97,532	606	48,225	347	49,307	259
Stream	488,391	2,685	192,533	1,242	295,858	1,443
<b>Total:</b>	588,709	3,302	240,758	1,589	347,950	1,713
<b>Region 4</b>						
Undesig	286	1			286	1
Lake	212,421	1,420	197,462	1,329	14,959	91
Stream	219,802	1,561	141,761	1,019	78,041	542
<b>Total:</b>	432,509	2,982	339,223	2,348	93,286	634
<b>Region 5</b>						
Undesig	278	2	68	1	210	1
Lake	46,708	312	39,323	275	7,386	37
Stream	246,506	1,511	140,812	886	105,694	625
<b>Total:</b>	293,492	1,825	180,203	1,162	113,290	663

**Table 6. Angling Pressure in angler days by Region by Lake or Stream for the summer season of May through September for the survey license year 2017 (continued).**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Region 6</b>						
Lake	79,395	596	67,428	504	11,966	92
Stream	38,509	280	33,456	252	5,053	28
<b>Total:</b>	117,904	876	100,884	756	17,019	120
	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Region 7</b>						
Lake	20,753	142	15,203	101	5,549	41
Stream	45,646	333	40,303	271	5,344	62
<b>Total:</b>	66,399	475	55,506	372	10,893	103

**Statewide Summer Pressure Estimates by Survey License Year 2017**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	14,622	75	8,740	49	5,882	26
Lake	703,922	4,704	567,068	3,932	136,854	772
Stream	1,415,730	8,416	770,734	5,038	644,996	3,378
<b>Statewide Total</b>	2,134,273	13,195	1,346,542	9,019	787,732	4,176

**Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer season (May - September) by Survey License Year 2017.**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Beaverhead River</b>						
Lake	192	1	192	1		
Stream	19,524	143	4,759	48	14,766	95
<b>Total:</b>	19,716	144	4,951	49	14,766	95
<b>Belt Creek</b>						
Stream	4,034	26	3,015	20	1,019	6
<b>Total:</b>	4,034	26	3,015	20	1,019	6
<b>Big Hole River</b>						
Lake	10,472	56	9,481	51	990	5
Stream	80,206	467	36,458	239	43,748	228
<b>Total:</b>	90,678	523	45,939	290	44,738	233
<b>Bighorn River</b>						
Lake	7,970	48	5,688	34	2,282	14
Stream	85,151	591	27,017	163	58,134	428
<b>Total:</b>	93,121	639	32,705	197	60,416	442
<b>Bitterroot River</b>						
Lake	7,068	47	4,801	35	2,267	12
Stream	53,782	294	28,768	187	25,014	107
<b>Total:</b>	60,850	341	33,569	222	27,281	119
<b>Blackfoot River</b>						
Lake	24,542	182	21,431	163	3,111	19
Stream	67,746	349	39,686	230	28,060	119
<b>Total:</b>	92,288	531	61,117	393	31,171	138
<b>Boulder River</b>						
Lake	267	2	267	2		
Stream	2,840	17	1,950	12	890	5
<b>Total:</b>	3,107	19	2,217	14	890	5
<b>Clark Fork River - Flint / Rock</b>						
Lake	37,147	219	31,609	191	5,538	28
Stream	52,596	296	19,192	145	33,404	151
<b>Total:</b>	89,743	515	50,801	336	38,942	179
<b>Flathead River</b>						
Lake	81,463	546	60,361	425	21,102	121
Stream	49,587	262	34,514	201	15,073	61
<b>Total:</b>	131,050	808	94,875	626	36,175	182
<b>Fort Peck Reservoir</b>						
Lake	61,661	464	49,828	374	11,833	90
Stream	8,758	92	7,636	81	1,122	11
<b>Total:</b>	70,419	556	57,464	455	12,955	101
<b>Gallatin River</b>						
Lake	12,098	80	10,554	72	1,544	8
Stream	71,424	373	39,028	237	32,396	136
<b>Total:</b>	83,522	453	49,582	309	33,940	144

**Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer season (May - September) by Survey License Year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Jefferson River</b>						
Lake	5,902	37	4,733	31	1,169	6
Stream	9,058	56	4,941	38	4,118	18
<b>Total:</b>	<b>14,960</b>	<b>93</b>	<b>9,674</b>	<b>69</b>	<b>5,287</b>	<b>24</b>
<b>Kootenai River</b>						
Lake	32,543	203	24,039	164	8,503	39
Stream	21,738	112	14,113	79	7,625	33
<b>Total:</b>	<b>54,281</b>	<b>315</b>	<b>38,152</b>	<b>243</b>	<b>16,128</b>	<b>72</b>
<b>Little Missouri River</b>						
Lake	135	2	135	2		
<b>Total:</b>	<b>135</b>	<b>2</b>	<b>135</b>	<b>2</b>		
<b>Lower Clark Fork River</b>						
Lake	41,198	268	37,116	249	4,082	19
Stream	27,163	175	17,715	128	9,448	47
<b>Total:</b>	<b>68,361</b>	<b>443</b>	<b>54,831</b>	<b>377</b>	<b>13,530</b>	<b>66</b>
<b>Lower Milk River</b>						
Stream	3,016	17	3,016	17		
<b>Total:</b>	<b>3,016</b>	<b>17</b>	<b>3,016</b>	<b>17</b>		
<b>Lower Missouri River</b>						
Lake	1,714	13	1,714	13		
Stream	1,162	11	1,162	11		
<b>Total:</b>	<b>2,876</b>	<b>24</b>	<b>2,876</b>	<b>24</b>		
<b>Lower Yellowstone River</b>						
Lake	4,455	26	4,455	26		
Stream	34,918	247	30,109	193	4,809	54
<b>Total:</b>	<b>39,373</b>	<b>273</b>	<b>34,564</b>	<b>219</b>	<b>4,809</b>	<b>54</b>
<b>Madison River</b>						
Lake	50,977	304	12,512	104	38,465	200
Stream	207,318	1,122	57,198	396	150,119	726
<b>Total:</b>	<b>258,294</b>	<b>1,426</b>	<b>69,710</b>	<b>500</b>	<b>188,584</b>	<b>926</b>
<b>Marias River</b>						
Lake	18,458	125	18,115	122	344	3
Stream	3,994	31	3,574	29	420	2
<b>Total:</b>	<b>22,452</b>	<b>156</b>	<b>21,689</b>	<b>151</b>	<b>764</b>	<b>5</b>
<b>Middle Clark Fork River</b>						
Lake	2,550	23	2,264	22	286	1
Stream	67,638	366	44,069	264	23,570	102
<b>Total:</b>	<b>70,188</b>	<b>389</b>	<b>46,333</b>	<b>286</b>	<b>23,856</b>	<b>103</b>
<b>Middle Milk River</b>						
Lake	11,336	91	11,202	89	134	2
Stream	10,492	65	9,583	60	909	5
<b>Total:</b>	<b>21,827</b>	<b>156</b>	<b>20,785</b>	<b>149</b>	<b>1,043</b>	<b>7</b>
<b>Middle Yellowstone River</b>						
Lake	6,579	46	6,579	46		
Stream	14,566	107	13,298	101	1,268	6
<b>Total:</b>	<b>21,146</b>	<b>153</b>	<b>19,877</b>	<b>147</b>	<b>1,268</b>	<b>6</b>

**Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer season (May - September) by Survey License Year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Missouri River - Dearborn</b>						
Lake	2,520	22	2,520	22		
Stream	114,677	790	61,715	437	52,962	353
<b>Total:</b>	<b>117,198</b>	<b>812</b>	<b>64,235</b>	<b>459</b>	<b>52,962</b>	<b>353</b>
<b>Missouri River - Judith</b>						
Lake	8,763	54	8,763	54		
Stream	32,293	215	31,436	209	857	6
<b>Total:</b>	<b>41,056</b>	<b>269</b>	<b>40,199</b>	<b>263</b>	<b>857</b>	<b>6</b>
<b>Missouri River - Poplar</b>						
Lake	163	1	163	1		
Stream	14,361	89	11,339	77	3,022	12
<b>Total:</b>	<b>14,524</b>	<b>90</b>	<b>11,502</b>	<b>78</b>	<b>3,022</b>	<b>12</b>
<b>Musselshell River</b>						
Lake	7,274	52	7,140	50	134	2
Stream	4,613	42	3,917	37	696	5
<b>Total:</b>	<b>11,887</b>	<b>94</b>	<b>11,057</b>	<b>87</b>	<b>830</b>	<b>7</b>
<b>Powder River</b>						
Stream	1,314	18	1,314	18		
<b>Total:</b>	<b>1,314</b>	<b>18</b>	<b>1,314</b>	<b>18</b>		
<b>Red Rock River</b>						
Lake	9,618	72	4,678	43	4,940	29
Stream	4,694	34	2,622	17	2,072	17
<b>Total:</b>	<b>14,312</b>	<b>106</b>	<b>7,300</b>	<b>60</b>	<b>7,012</b>	<b>46</b>
<b>Ruby River</b>						
Lake	3,691	29	2,875	25	816	4
Stream	4,836	25	1,377	9	3,459	16
<b>Total:</b>	<b>8,527</b>	<b>54</b>	<b>4,252</b>	<b>34</b>	<b>4,275</b>	<b>20</b>
<b>Smith River</b>						
Lake	4,566	32	4,566	32		
Stream	25,400	218	13,591	121	11,809	97
<b>Total:</b>	<b>29,966</b>	<b>250</b>	<b>18,157</b>	<b>153</b>	<b>11,809</b>	<b>97</b>
<b>South Fork Flathead River</b>						
Lake	8,929	55	8,409	53	520	2
Stream	15,280	70	6,390	34	8,891	36
<b>Total:</b>	<b>24,209</b>	<b>125</b>	<b>14,799</b>	<b>87</b>	<b>9,411</b>	<b>38</b>
<b>Sun River</b>						
Lake	13,430	88	12,439	84	991	4
Stream	10,326	55	6,758	41	3,569	14
<b>Total:</b>	<b>23,757</b>	<b>143</b>	<b>19,197</b>	<b>125</b>	<b>4,560</b>	<b>18</b>
<b>Swan River</b>						
Lake	7,239	47	5,380	39	1,858	8
Stream	3,507	23	2,391	15	1,115	8
<b>Total:</b>	<b>10,746</b>	<b>70</b>	<b>7,771</b>	<b>54</b>	<b>2,973</b>	<b>16</b>

**Table 7. Angling Pressure in angler days by Drainage by Lake or Stream for the Summer season (May - September) by Survey License Year 2017 (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Teton River</b>						
Lake	1,080	7	1,080	7		
Stream	1,709	12	1,123	9	587	3
<b>Total:</b>	<b>2,789</b>	<b>19</b>	<b>2,203</b>	<b>16</b>	<b>587</b>	<b>3</b>
<b>Tongue River</b>						
Lake	16,162	114	10,613	73	5,549	41
Stream	9,414	68	8,879	60	535	8
<b>Total:</b>	<b>25,576</b>	<b>182</b>	<b>19,492</b>	<b>133</b>	<b>6,084</b>	<b>49</b>
<b>Upper Clark Fork River</b>						
Lake	2,088	14	2,088	14		
Stream	16,842	94	14,035	80	2,807	14
<b>Total:</b>	<b>18,930</b>	<b>108</b>	<b>16,123</b>	<b>94</b>	<b>2,807</b>	<b>14</b>
<b>Upper Milk River</b>						
Lake	4,533	30	4,533	30		
Stream	721	6	721	6		
<b>Total:</b>	<b>5,254</b>	<b>36</b>	<b>5,254</b>	<b>36</b>		
<b>Upper Missouri River</b>						
Lake	159,280	1,056	145,722	973	13,558	83
Stream	35,630	260	26,708	188	8,922	72
<b>Total:</b>	<b>194,910</b>	<b>1,316</b>	<b>172,430</b>	<b>1,161</b>	<b>22,480</b>	<b>155</b>
<b>Upper Yellowstone River</b>						
Lake	33,540	224	27,119	195	6,420	29
Stream	222,405	1,173	134,621	796	87,784	377
<b>Total:</b>	<b>255,945</b>	<b>1,397</b>	<b>161,740</b>	<b>991</b>	<b>94,204</b>	<b>406</b>

**Statewide Pressure Estimates for Summer months by Survey License Year 2017**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	14,622	75	8,740	49	5,882	26
Lake	703,922	4,704	567,068	3,932	136,854	772
Stream	1,415,730	8,416	770,734	5,038	644,996	3,378
<b>Statewide Total</b>	<b>2,134,273</b>	<b>13,195</b>	<b>1,346,542</b>	<b>9,019</b>	<b>787,732</b>	<b>4,176</b>

### **3.3 ANGLER PRESSURE ESTIMATES WINTER (OCTOBER-APRIL)**

The "winter" season for angling is from March through April and October through February of the following year. In 2017-2018, 1,074,077 angler days (33.4%) of the annual fishing pressure occurred during this period (Table 8). Residents accounted for 656,292 angler days (61%) and nonresidents made up the remaining 417,784 angler days (39%). Estimates for individual waters for the winter season sorted alphabetically are presented in Appendix C of this report. Monthly estimates for the winter months for waters sorted alphabetically are provided in Appendix E.

The distribution of angler pressure distributed among Fish, Wildlife and Parks regions during winter (Chart 5, Table 8) is heavily skewed toward the western and central portions of the state. Region 4 received the most angling pressure with 265,981 angler days (24.8%), followed closely by Region 3 with 254,523 angler days (23.7%). Regions 2, 5 and 1 were next in order and close to each other, with 179,168 (16.7%), 145,771 (13.6%), and 107,971 (10%) angler days respectively. The easternmost regions of 6 and 7 were the lowest in pressure with 79,978 (7.4%) and 40,005 (3.7%) angler days respectively.

Residents (Chart 5) exerted the majority of angling pressure during the winter season in 2017 in all regions but Regions 3, 5 and 6. The percent of angling pressure by residents for each region was: Region 1 – 71.3%, Region 2 – 67%, Region 3 – 45.5%, Region 4 – 77.5%, Region 5 – 46.5%, Region 6 – 48.6%, and Region 7 – 76.7%.

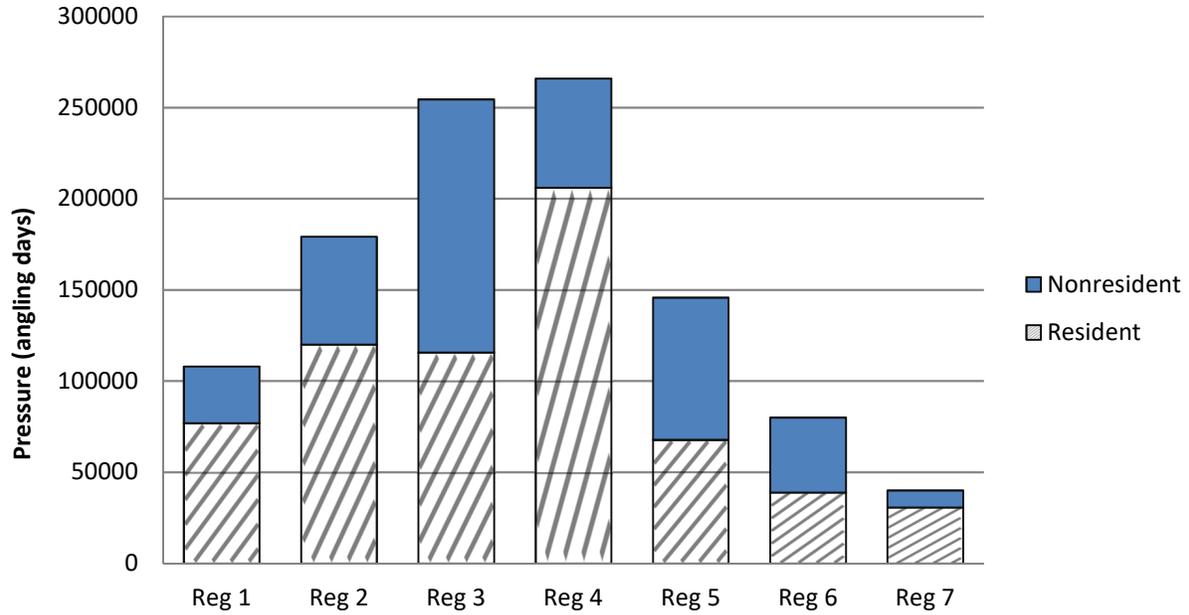
Angling on lotic waters (streams/rivers) accounted for 63.1% (677,701 angler days) of the statewide pressure during the winter season while lentic waters (lakes/ponds/reservoirs) accounted for 36.8% (394,505 angler days) of the pressure and undesignated waters accounted for less than 0.01% (1,871 angler days) of the pressure (Table 8).

Regions 6, 1 and 4 were the regions in which lake angling pressure exceeded stream pressure during the winter season (81.8%, 71% and 51.4%, respectively, from lakes), although Region 4 had the highest number of lake anglers (136,637) (Table 8, Chart 6). Region 4 was relatively balanced between stream and lake angling (48.6% and 51.4%, respectively). Regions 2, 3, 5 and 7 were dominated by stream anglers, and Region 3 had the highest number of stream anglers for any region (212,274 angler days) while Region 5 had the highest percentage (94.5%) of anglers that were stream anglers.

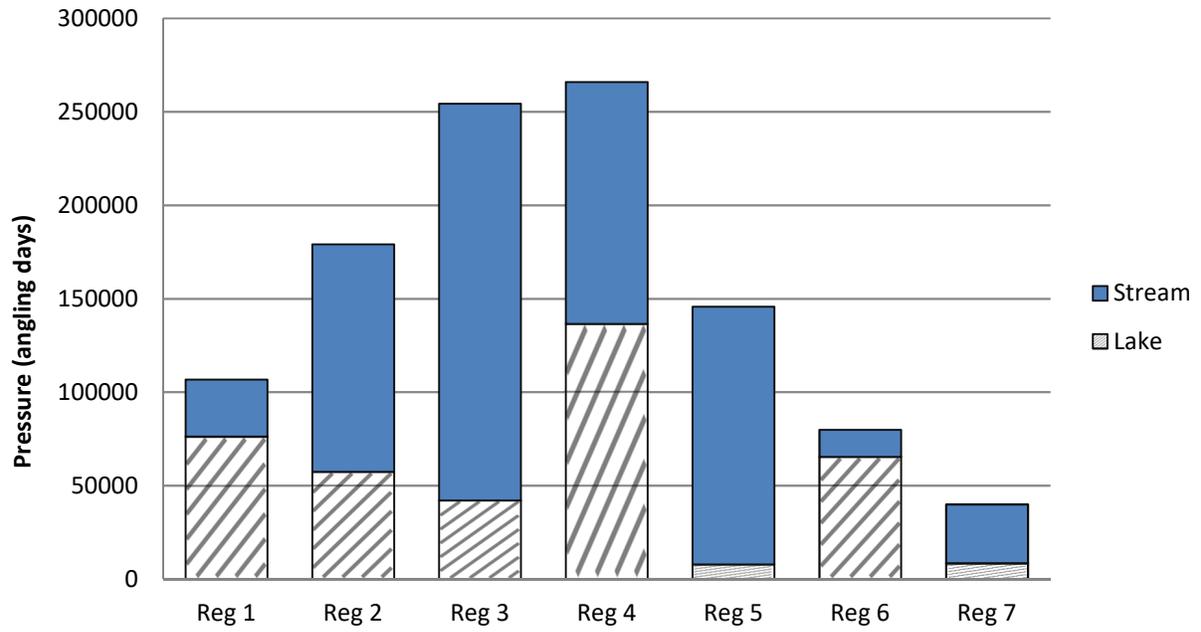
Angling pressure during winter was summarized within the 40 major drainages (Figure 1, Table 9). The pressure by drainage ranged from a high of 114,799 angler days for the Madison River drainage to a low of 88 angler days for the Little Missouri River drainage. The drainages with the highest percentage of resident anglers were the Belt Creek, Little Missouri River, Lower Milk River, Musselshell River, South Fork Flathead River and Teton River all at 100%, while the Bighorn River and Tongue River drainages had the lowest percentage of resident anglers (17.2% and 22.7%). The Little Missouri River drainage had

the highest percentage of lake anglers (100%), but based on only one trip; this was followed by the Marias River drainage with 98.6%, mainly due to the influence of lake Elwell (Tiber Reservoir). The Beaverhead River, Belt Creek, Boulder River, Missouri River - Dearborn and Lower Milk River drainages had the lowest percentage of lake anglers at 0%.

**Chart 5. Statewide Angling Pressure Comparing Region and Residency - Winter Months 2017-18**



**Chart 6. Statewide Angling Pressure Comparing Region and Water Type - Winter Months 2017-18**



**Table 8. Angling Pressure in angler days by Region by Lake or Stream for the winter season of October through February of the 2017 Survey License Year.**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Region 1</b>						
Undesig	1,206	7	372	1	834	6
Lake	76,250	309	57,073	247	19,178	62
Stream	30,515	115	19,510	80	11,005	35
<b>Total:</b>	<b>107,971</b>	<b>431</b>	<b>76,955</b>	<b>328</b>	<b>31,017</b>	<b>103</b>
<b>Region 2</b>						
Lake	57,391	174	40,646	123	16,745	51
Stream	121,777	551	79,328	340	42,449	211
<b>Total:</b>	<b>179,168</b>	<b>725</b>	<b>119,974</b>	<b>463</b>	<b>59,194</b>	<b>262</b>
<b>Region 3</b>						
Undesig	104	1			104	1
Lake	42,146	134	19,980	63	22,166	71
Stream	212,274	840	95,702	410	116,572	430
<b>Total:</b>	<b>254,523</b>	<b>975</b>	<b>115,682</b>	<b>473</b>	<b>138,842</b>	<b>502</b>
<b>Region 4</b>						
Lake	136,637	520	118,836	458	17,802	62
Stream	129,344	561	87,282	349	42,062	212
<b>Total:</b>	<b>265,981</b>	<b>1,081</b>	<b>206,118</b>	<b>807</b>	<b>59,864</b>	<b>274</b>
<b>Region 5</b>						
Lake	7,965	45	6,268	38	1,697	7
Stream	137,807	558	61,504	273	76,303	285
<b>Total:</b>	<b>145,771</b>	<b>603</b>	<b>67,772</b>	<b>311</b>	<b>78,000</b>	<b>292</b>
<b>Region 6</b>						
Undesig	88	1	88	1		
Lake	65,389	235	25,907	113	39,482	122
Stream	14,500	85	12,838	74	1,662	11
<b>Total:</b>	<b>79,978</b>	<b>321</b>	<b>38,833</b>	<b>188</b>	<b>41,144</b>	<b>133</b>
<b>Region 7</b>						
Lake	8,520	36	2,083	17	6,437	19
Stream	31,485	142	28,612	126	2,872	16
<b>Total:</b>	<b>40,005</b>	<b>178</b>	<b>30,695</b>	<b>143</b>	<b>9,309</b>	<b>35</b>

**Statewide Pressure Estimates for Winter months by Survey License Year 2017.**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	1,871	14	725	5	1,145	9
Lake	394,505	1,455	270,792	1,059	123,713	396
Stream	677,701	2,852	384,775	1,652	292,926	1,200
<b>Statewide Total</b>	<b>1,074,077</b>	<b>4,321</b>	<b>656,292</b>	<b>2,716</b>	<b>417,784</b>	<b>1,605</b>

**Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October – February) of the 2017 survey license year.**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Beaverhead River</b>						
Stream	5,562	18	2,866	6	2,696	12
<b>Total:</b>	<b>5,562</b>	<b>18</b>	<b>2,866</b>	<b>6</b>	<b>2,696</b>	<b>12</b>
<b>Belt Creek</b>						
Stream	415	4			415	4
<b>Total:</b>	<b>415</b>	<b>4</b>			<b>415</b>	<b>4</b>
<b>Big Hole River</b>						
Lake	329	1			329	1
Stream	27,813	99	14,793	45	13,020	54
<b>Total:</b>	<b>28,143</b>	<b>100</b>	<b>14,793</b>	<b>45</b>	<b>13,349</b>	<b>55</b>
<b>Bighorn River</b>						
Lake	1,525	7	460	2	1,065	5
Stream	83,354	316	14,171	58	69,183	258
<b>Total:</b>	<b>84,879</b>	<b>323</b>	<b>14,631</b>	<b>60</b>	<b>70,248</b>	<b>263</b>
<b>Bitterroot River</b>						
Lake	2,595	10	1,370	6	1,225	4
Stream	38,944	222	25,609	132	13,334	90
<b>Total:</b>	<b>41,539</b>	<b>232</b>	<b>26,979</b>	<b>138</b>	<b>14,559</b>	<b>94</b>
<b>Blackfoot River</b>						
Lake	9,172	36	5,549	25	3,623	11
Stream	8,861	33	7,157	26	1,704	7
<b>Total:</b>	<b>18,032</b>	<b>69</b>	<b>12,706</b>	<b>51</b>	<b>5,327</b>	<b>18</b>
<b>Boulder River</b>						
Stream	639	4	265	3	374	1
<b>Total:</b>	<b>639</b>	<b>4</b>	<b>265</b>	<b>3</b>	<b>374</b>	<b>1</b>
<b>Clark Fork River - Flint / Rock</b>						
Lake	45,182	123	33,285	87	11,897	36
Stream	29,663	111	14,310	51	15,352	60
<b>Total:</b>	<b>74,844</b>	<b>234</b>	<b>47,595</b>	<b>138</b>	<b>27,249</b>	<b>96</b>
<b>Flathead River</b>						
Lake	46,815	165	30,340	113	16,475	52
Stream	11,179	49	5,850	33	5,328	16
<b>Total:</b>	<b>57,994</b>	<b>214</b>	<b>36,190</b>	<b>146</b>	<b>21,803</b>	<b>68</b>
<b>Fort Peck Reservoir</b>						
Lake	46,725	164	15,774	66	30,951	98
Stream	7,989	31	7,989	31		
<b>Total:</b>	<b>54,714</b>	<b>195</b>	<b>23,763</b>	<b>97</b>	<b>30,951</b>	<b>98</b>
<b>Gallatin River</b>						
Lake	6,485	16	4,508	10	1,977	6
Stream	41,171	146	19,101	77	22,070	69
<b>Total:</b>	<b>47,656</b>	<b>162</b>	<b>23,609</b>	<b>87</b>	<b>24,047</b>	<b>75</b>

**Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October – February) of the 2017 survey license year (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Jefferson River</b>						
Lake	5,964	15	5,964	15		
Stream	1,830	12	991	8	839	4
<b>Total:</b>	<b>7,794</b>	<b>27</b>	<b>6,955</b>	<b>23</b>	<b>839</b>	<b>4</b>
<b>Kootenai River</b>						
Lake	17,316	77	16,408	73	908	4
Stream	13,349	36	11,288	30	2,061	6
<b>Total:</b>	<b>30,666</b>	<b>113</b>	<b>27,696</b>	<b>103</b>	<b>2,969</b>	<b>10</b>
<b>Little Missouri River</b>						
Lake	88	1	88	1		
<b>Total:</b>	<b>88</b>	<b>1</b>	<b>88</b>	<b>1</b>		
<b>Lower Clark Fork River</b>						
Lake	8,123	44	6,433	39	1,691	5
Stream	4,412	22	796	9	3,616	13
<b>Total:</b>	<b>12,535</b>	<b>66</b>	<b>7,229</b>	<b>48</b>	<b>5,307</b>	<b>18</b>
<b>Lower Milk River</b>						
Stream	1,292	5	1,292	5		
<b>Total:</b>	<b>1,292</b>	<b>5</b>	<b>1,292</b>	<b>5</b>		
<b>Lower Missouri River</b>						
Lake	1,282	5	1,282	5		
Stream	906	4	177	2	730	2
<b>Total:</b>	<b>2,188</b>	<b>9</b>	<b>1,459</b>	<b>7</b>	<b>730</b>	<b>2</b>
<b>Lower Yellowstone River</b>						
Lake	177	2	177	2		
Stream	29,014	125	27,993	119	1,021	6
<b>Total:</b>	<b>29,191</b>	<b>127</b>	<b>28,170</b>	<b>121</b>	<b>1,021</b>	<b>6</b>
<b>Madison River</b>						
Lake	15,669	52	2,345	13	13,323	39
Stream	99,130	368	36,728	146	62,402	222
<b>Total:</b>	<b>114,799</b>	<b>420</b>	<b>39,073</b>	<b>159</b>	<b>75,725</b>	<b>261</b>
<b>Marias River</b>						
Lake	6,081	25	5,134	22	948	3
Stream	88	1	88	1		
<b>Total:</b>	<b>6,170</b>	<b>26</b>	<b>5,222</b>	<b>23</b>	<b>948</b>	<b>3</b>
<b>Middle Clark Fork River</b>						
Lake	177	2	177	2		
Stream	38,646	158	28,926	116	9,719	42
<b>Total:</b>	<b>38,823</b>	<b>160</b>	<b>29,103</b>	<b>118</b>	<b>9,719</b>	<b>42</b>

**Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October - February) of the 2017 survey license year (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Middle Milk River</b>						
Lake	14,608	48	6,076	24	8,532	24
Stream	2,470	15	2,470	15		
<b>Total:</b>	<b>17,078</b>	<b>63</b>	<b>8,546</b>	<b>39</b>	<b>8,532</b>	<b>24</b>
<b>Middle Yellowstone River</b>						
Lake	1,061	12	1,061	12		
Stream	10,054	58	9,950	57	104	1
<b>Total:</b>	<b>11,115</b>	<b>70</b>	<b>11,011</b>	<b>69</b>	<b>104</b>	<b>1</b>
<b>Missouri River - Dearborn</b>						
Stream	80,191	331	48,835	193	31,356	138
<b>Total:</b>	<b>80,191</b>	<b>331</b>	<b>48,835</b>	<b>193</b>	<b>31,356</b>	<b>138</b>
<b>Missouri River - Judith</b>						
Lake	3,229	13	3,229	13		
Stream	13,274	48	9,147	26	4,126	22
<b>Total:</b>	<b>16,503</b>	<b>61</b>	<b>12,376</b>	<b>39</b>	<b>4,126</b>	<b>22</b>
<b>Missouri River - Poplar</b>						
Lake	631	4	631	4		
Stream	4,535	31	3,602	22	933	9
<b>Total:</b>	<b>5,166</b>	<b>35</b>	<b>4,233</b>	<b>26</b>	<b>933</b>	<b>9</b>
<b>Musselshell River</b>						
Lake	3,431	14	3,431	14		
Stream	442	5	442	5		
<b>Total:</b>	<b>3,873</b>	<b>19</b>	<b>3,873</b>	<b>19</b>		
<b>Red Rock River</b>						
Lake	6,786	26	1,927	6	4,859	20
Stream	2,356	7	1,420	3	937	4
<b>Total:</b>	<b>9,143</b>	<b>33</b>	<b>3,347</b>	<b>9</b>	<b>5,796</b>	<b>24</b>
<b>Ruby River</b>						
Lake	5,839	15	4,162	10	1,677	5
Stream	5,911	31	2,839	18	3,072	13
<b>Total:</b>	<b>11,750</b>	<b>46</b>	<b>7,001</b>	<b>28</b>	<b>4,749</b>	<b>18</b>
<b>Smith River</b>						
Lake	1,761	6	1,046	4	715	2
Stream	4,208	30	2,446	13	1,762	17
<b>Total:</b>	<b>5,969</b>	<b>36</b>	<b>3,492</b>	<b>17</b>	<b>2,477</b>	<b>19</b>
<b>South Fork Flathead River</b>						
Lake	637	4	637	4		
Stream	354	4	354	4		
<b>Total:</b>	<b>991</b>	<b>8</b>	<b>991</b>	<b>8</b>		

**Table 9. Angling Pressure in angler days by Drainage by Lake or Stream for the Winter season (March - April and October – February) of the 2017 survey license year (continued).**

	--- Totals ---		--- Resident ---		--- Non-Resident ---	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
<b>Sun River</b>						
Lake	5,706	25	4,126	20	1,580	5
Stream	1,505	4	1,505	4		
<b>Total:</b>	<b>7,211</b>	<b>29</b>	<b>5,631</b>	<b>24</b>	<b>1,580</b>	<b>5</b>
<b>Swan River</b>						
Lake	2,909	17	2,805	16	104	1
Stream	743	2	743	2		
<b>Total:</b>	<b>3,652</b>	<b>19</b>	<b>3,548</b>	<b>18</b>	<b>104</b>	<b>1</b>
<b>Teton River</b>						
Lake	390	1	390	1		
Stream	1,100	2	1,100	2		
<b>Total:</b>	<b>1,490</b>	<b>3</b>	<b>1,490</b>	<b>3</b>		
<b>Tongue River</b>						
Lake	8,255	33	1,817	14	6,437	19
Stream	2,470	17	619	7	1,851	10
<b>Total:</b>	<b>10,725</b>	<b>50</b>	<b>2,436</b>	<b>21</b>	<b>8,288</b>	<b>29</b>
<b>Upper Clark Fork River</b>						
Lake	265	3	265	3		
Stream	5,664	27	3,324	15	2,340	12
<b>Total:</b>	<b>5,930</b>	<b>30</b>	<b>3,589</b>	<b>18</b>	<b>2,340</b>	<b>12</b>
<b>Upper Milk River</b>						
Lake	1,437	10	708	8	730	2
Stream	637	4	637	4		
<b>Total:</b>	<b>2,074</b>	<b>14</b>	<b>1,345</b>	<b>12</b>	<b>730</b>	<b>2</b>
<b>Upper Missouri River</b>						
Lake	115,203	439	101,373	389	13,829	50
Stream	27,830	146	23,427	115	4,403	31
<b>Total:</b>	<b>143,032</b>	<b>585</b>	<b>124,800</b>	<b>504</b>	<b>18,232</b>	<b>81</b>
<b>Upper Yellowstone River</b>						
Lake	5,821	31	5,189	29	632	2
Stream	69,223	324	51,045	247	18,178	77
<b>Total:</b>	<b>75,044</b>	<b>355</b>	<b>56,234</b>	<b>276</b>	<b>18,810</b>	<b>79</b>

**Statewide Pressure Estimates for Winter Months by Survey License Year 2017**

	----- Totals -----		----- Resident -----		----- Non-Resident -----	
	Pressure	Trips	Pressure	Trips	Pressure	Trips
Undesig	1,871	14	725	5	1,145	9
Lake	394,505	1,455	270,792	1,059	123,713	396
Stream	677,701	2,852	384,775	1,652	292,926	1,200
<b>Statewide Total</b>	<b>1,074,077</b>	<b>4,321</b>	<b>656,292</b>	<b>2,716</b>	<b>417,784</b>	<b>1,605</b>

### **3.4 PRIMARY SPECIES FISHED FOR**

The mail questionnaire asked anglers to indicate the primary species they were fishing for. The answers to this question provides a good generalization regarding angler preferences and intentions, but are probably inaccurate on some waters because anglers often will intentionally fish for more than one species but can only indicate one on the questionnaire. Another innacuracy occurs in situations where anglers are fishing for one of many species of co-existing trout in a lake or stream. The angler may typically expect to catch a rainbow, cutthroat, brown, or brook trout depending on the situation. It is most likely for this reason that a common response to the survey, particularly in the trout-dominant rivers of southwestern Montana, was “trout.”

On a statewide basis, the most common response was “trout” (41.13%), followed by Rainbow Trout (12.83%), Walleye (9.24%), Brown Trout (7.48%), Cutthroat Trout (4.22%), and Bass (2.43%) (Table 10). Salmonids (trout, salmon, char, whitefish and grayling) collectively are indicated as the primary species by 72.33% of anglers.

Although salmonid fishing dominates on a statewide basis in terms of angler days, there are notable geographic differences (Table 11). Salmonid fishing comprises the majority of angling pressure in every drainage west of the Continental Divide except for the lower Clark Fork, which is heavily influenced by fishing on Noxon Rapids Reservoir for pike, walleye, bass and yellow perch. The salmonid-dominant drainages west of the divide have some notable differences. Lake trout are a very highly sought species in the Flathead River drainage (14.68%), primarily due to Flathead Lake. Cutthroat trout constitute the majority of angling interest in the South Fork Flathead drainage (69.92%), where FWP is actively working to eliminate the presence of any rainbow trout. Salmon (Kokanee plus salmon) are the dominant species of interest in the Kootenai River drainage, primarily due to fishing on Lake Kooconusa.

The Missouri headwater drainages in southwest Montana are dominated by trout fishing, primarily for rainbow and brown trout in the valley-bottom rivers. For these two species plus “trout”, the percentage ranges from 82.61% in the Boulder River drainage to 95.68% in the Beaverhead River drainage. Cutthroat and brook trout, where indicated as the primary species, are numerically low (typically below 14%), but are often the only game species in the mountain lakes and streams in these drainages.

The upper and middle Missouri River and the drainages in Region 4 represent a transition from salmonids to cool-water species. The Upper Missouri River drainage, which contains Canyon Ferry, Hauser and Holter reservoirs is dominated by “trout” and rainbow trout as a primary species (50.79%), although walleye represent a significant component (27.87%). Downstream in the Missouri-Dearborn drainage, “trout,” rainbow trout and brown trout are the overwhelming favorite species and make up close to 82% of the effort. Further downstream in the Missouri River-Judith drainage, “trout”/rainbow trout still comprise the majority of species being fished for, but cool-water species such as walleye (22.36%) and channel catfish (12.11%) are important to anglers. The Marias River drainage is the most notable tributary to the Missouri in Region 4, due to its high emphasis on walleye (70.33%) and northern pike (8.24%).

The lower Missouri River mainstem drainages within Region 6 are dominated by walleye and northern pike fishing. Combined, these two species comprise 57.64% of angler preference in Fort Peck Reservoir, 44.0% in the Missouri River-Poplar, and 69.69% in the Lower Missouri drainage. Channel catfish are sought in all of the drainages within Region 6, but rise to their highest level in the Missouri River - Judith drainage (25.0%).

Species preferences within the Yellowstone River drainage show a longitudinal shift from salmonid fishing in the headwaters to cool-water species in eastern Montana. In the Upper Yellowstone drainage within Region 3, the combination of “trout,” rainbow trout, brown trout and cutthroat trout comprise 92.09% of angler preferences. Further downstream in Region 5, but still within the Upper Yellowstone drainage, these same species make up over 80.44% of preferences. The Middle Yellowstone River drainage still has a substantial component of anglers seeking trout (roughly 16% for “trout,” rainbow trout and brown trout), but cool-water species dominate, led by channel catfish (35.87%). The Lower Yellowstone River drainage is dominated by fishing for coolwater species, starting with channel catfish (44.0%) followed by walleye (19.5%), paddlefish (12.5%), bass (12%) and sauger (1.5%). Notable tributary drainages to the Yellowstone include the Bighorn River drainage (87.52% for “trout,” rainbow trout and brown trout), and the Tongue River drainage which has high levels for crappie (34.05%) and walleye (31.47%) based primarily on fishing in Tongue River reservoir.

**Table 10. Percent of Trips for each Primary Species Fished for - Statewide by Survey License Year 2017.**

Trout	41.13%	Common Carp	0.22%
Rainbow Trout	12.83%	Burbot	0.10%
Walleye	9.24%	Bluegill	0.07%
Brown Trout	7.48%	Sauger	0.06%
Cutthroat Trout	4.22%	Goldeye	0.05%
Bass	2.43%	Golden Trout	0.05%
Channel Catfish	2.40%	Sturgeon	0.04%
Yellow Perch	2.20%	Bull Trout	0.03%
Lake Trout	1.37%	Lake Whitefish	0.03%
Salmon	1.35%	Rainbow Trout X Westslope	0.03%
Brook Trout	1.22%	Freshwater Drum	0.02%
Nothern Pike	1.22%	Rainbow Smelt	0.02%
Kokanee salmon	0.86%	Northern Pike X Muskie	0.01%
Paddlefish	0.61%	Rainbow Trout X Cutthroat	0.01%
Crappie	0.47%	Sucker	0.01%
Smallmouth Bass	0.46%	Black Crappie	0.01%
Whitefish	0.45%	Sunfish	0.01%
Arctic Grayling	0.27%	Mountain Whitefish	0.01%
Largemouth Bass	0.25%		

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017.**

Drainage	Primary Species Fished for	Percent of days for species
<b>Region: 1</b>		
	<b>Flathead River (46.27% of days fished in this Region.)</b>	
	Trout	18.00%
	Lake Trout	14.68%
	Bass	10.76%
	Rainbow Trout	7.63%
	Cutthroat Trout	7.63%
	Yellow Perch	6.95%
	Kokanee salmon	6.95%
	Salmon	5.68%
	Whitefish	4.31%
	Nothern Pike	1.27%
	Brown Trout	0.98%
	Brook Trout	0.88%
	Rainbow Trout X Westslope Cutthroat Trout Hybrid	0.49%
	Lake Whitefish	0.49%
	Arctic Grayling	0.49%
	Largemouth Bass	0.20%
	Sunfish	0.10%
	<b>Kootenai River (19.38% of days fished in this Region.)</b>	
	Rainbow Trout	24.30%
	Trout	19.86%
	Salmon	19.39%
	Bass	10.51%
	Kokanee salmon	9.58%
	Cutthroat Trout	3.50%
	Yellow Perch	2.10%
	Nothern Pike	1.87%
	Brook Trout	1.17%
	Lake Trout	0.93%
	Whitefish	0.47%
	Smallmouth Bass	0.23%
	Brown Trout	0.23%
	<b>Lower Clark Fork River (23.04% of days fished in this Region.)</b>	
	Bass	14.73%
	Trout	12.18%
	Walleye	7.66%
	Nothern Pike	4.91%
	Yellow Perch	4.13%
	Kokanee salmon	3.93%
	Smallmouth Bass	3.93%
	Lake Trout	2.95%
	Rainbow Trout	2.95%
	Brook Trout	2.75%
	Cutthroat Trout	2.16%
	Salmon	1.96%
	Largemouth Bass	0.79%
	Brown Trout	0.39%
	Whitefish	0.39%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
South Fork Flathead River (6.02% of days fished in this Region.)		
	Cutthroat Trout	69.92%
	Trout	18.05%
	Rainbow Trout	3.01%
	Bull Trout	2.26%
	Bass	0.75%
Swan River (4.03% of days fished in this Region.)		
	Trout	25.84%
	Lake Trout	14.61%
	Cutthroat Trout	7.87%
	Rainbow Trout	5.62%
	Bass	4.49%
	Nothern Pike	3.37%
	Brook Trout	3.37%
	Kokanee salmon	2.25%
	Brown Trout	1.12%
	Salmon	1.12%
<b>Region:</b>	<b>2</b>	
Bitterroot River (21.95% of days fished in this Region.)		
	Trout	52.71%
	Rainbow Trout	11.69%
	Brown Trout	10.65%
	Cutthroat Trout	10.30%
	Brook Trout	2.79%
	Whitefish	1.92%
	Nothern Pike	0.70%
	Walleye	0.52%
Blackfoot River (22.99% of days fished in this Region.)		
	Trout	47.00%
	Cutthroat Trout	15.17%
	Rainbow Trout	10.00%
	Yellow Perch	4.17%
	Brown Trout	3.00%
	Bass	2.00%
	Salmon	1.67%
	Nothern Pike	0.83%
	Kokanee salmon	0.50%
	Smallmouth Bass	0.50%
	Brook Trout	0.33%
	Walleye	0.17%
	Whitefish	0.17%
Clark Fork River - Flint / Rock (28.70% of days fished in this Region.)		
	Trout	53.27%
	Rainbow Trout	18.83%
	Cutthroat Trout	8.01%
	Brown Trout	6.81%
	Brook Trout	2.00%
	Salmon	1.74%
	Lake Trout	1.07%
	Kokanee salmon	0.80%
	Nothern Pike	0.27%
	Arctic Grayling	0.13%
	Burbot	0.13%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
Middle Clark Fork River (21.03% of days fished in this Region.)		
	Trout	54.46%
	Rainbow Trout	15.85%
	Cutthroat Trout	6.74%
	Brown Trout	3.64%
	Bass	1.82%
	Largemouth Bass	0.36%
	Nothern Pike	0.36%
	Whitefish	0.18%
Upper Clark Fork River (5.29% of days fished in this Region.)		
	Trout	41.30%
	Brown Trout	28.99%
	Cutthroat Trout	15.22%
	Rainbow Trout	7.25%
	Brook Trout	5.07%
	Largemouth Bass	2.17%
<b>Region:</b>	<b>3</b>	
Beaverhead River (3.79% of days fished in this Region.)		
	Trout	47.53%
	Brown Trout	43.21%
	Rainbow Trout	4.94%
	Brook Trout	1.23%
Big Hole River (14.56% of days fished in this Region.)		
	Trout	47.99%
	Brown Trout	25.04%
	Rainbow Trout	10.27%
	Brook Trout	7.38%
	Arctic Grayling	2.89%
	Cutthroat Trout	2.41%
	Whitefish	0.48%
	Yellow Perch	0.16%
	Rainbow Trout X Cutthroat Trout Hybrid	0.16%
Boulder River (0.54% of days fished in this Region.)		
	Trout	60.87%
	Brook Trout	13.04%
	Brown Trout	13.04%
	Rainbow Trout	8.70%
Gallatin River (14.38% of days fished in this Region.)		
	Trout	48.94%
	Rainbow Trout	22.76%
	Brown Trout	11.87%
	Cutthroat Trout	7.64%
	Bass	1.30%
	Arctic Grayling	1.14%
	Brook Trout	0.98%
	Golden Trout	0.33%
	Bluegill	0.33%
	Yellow Perch	0.16%
	Walleye	0.16%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
Jefferson River (2.81% of days fished in this Region.)		
	Trout	47.50%
	Brown Trout	20.00%
	Cutthroat Trout	10.00%
	Rainbow Trout	7.50%
	Brook Trout	2.50%
Madison River (43.15% of days fished in this Region.)		
	Trout	58.02%
	Rainbow Trout	23.02%
	Brown Trout	13.16%
	Brook Trout	0.54%
	Bass	0.38%
	Cutthroat Trout	0.22%
	Whitefish	0.11%
	Mountain Whitefish	0.05%
	Common Carp	0.05%
	Arctic Grayling	0.05%
	XXX	0.05%
Red Rock River (3.25% of days fished in this Region.)		
	Trout	47.48%
	Rainbow Trout	21.58%
	Cutthroat Trout	10.79%
	Arctic Grayling	6.47%
	Brown Trout	4.32%
	Burbot	2.16%
	Brook Trout	1.44%
	Whitefish	1.44%
Ruby River (2.34% of days fished in this Region.)		
	Trout	50.00%
	Brown Trout	24.00%
	Rainbow Trout	15.00%
	Cutthroat Trout	4.00%
Upper Missouri River (1.92% of days fished in this Region.)		
	Trout	34.15%
	Walleye	14.63%
	Common Carp	9.76%
	Rainbow Trout	9.76%
	Brown Trout	6.10%
	Cutthroat Trout	6.10%
	Brook Trout	3.66%
	Arctic Grayling	1.22%
Upper Yellowstone River (13.00% of days fished in this Region.)		
	Trout	55.40%
	Brown Trout	14.03%
	Rainbow Trout	12.77%
	Cutthroat Trout	9.89%
	Yellow Perch	1.44%
	Arctic Grayling	0.18%
	Brook Trout	0.18%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
<b>Region: 4</b>		
	<b>Belt Creek (0.74% of days fished in this Region.)</b>	
	Trout	53.33%
	Brook Trout	13.33%
	Rainbow Trout	13.33%
	Brown Trout	3.33%
	Cutthroat Trout	3.33%
	<b>Fort Peck Reservoir (0.12% of days fished in this Region.)</b>	
	Brook Trout	100.00%
	<b>Marias River (4.48% of days fished in this Region.)</b>	
	Walleye	70.33%
	Nothern Pike	8.24%
	Trout	3.85%
	Rainbow Trout	3.30%
	Lake Trout	1.10%
	Cutthroat Trout	1.10%
	Whitefish	0.55%
	<b>Missouri River - Dearborn (28.13% of days fished in this Region.)</b>	
	Trout	58.71%
	Rainbow Trout	23.18%
	Brown Trout	5.34%
	Walleye	4.90%
	Largemouth Bass	1.05%
	Bass	1.05%
	Yellow Perch	0.96%
	Rainbow Smelt	0.35%
	Brook Trout	0.17%
	Common Carp	0.17%
	Cutthroat Trout	0.17%
	Smallmouth Bass	0.17%
	Channel Catfish	0.09%
	<b>Missouri River - Judith (7.93% of days fished in this Region.)</b>	
	Trout	27.33%
	Walleye	22.36%
	Channel Catfish	12.11%
	Rainbow Trout	10.56%
	Brown Trout	6.52%
	Bass	3.73%
	Yellow Perch	2.17%
	Sturgeon	1.86%
	Smallmouth Bass	1.55%
	Freshwater Drum	1.24%
	Crappie	0.62%
	Brook Trout	0.62%
	Cutthroat Trout	0.31%
	<b>Musselshell River (1.67% of days fished in this Region.)</b>	
	Trout	44.12%
	Rainbow Trout	26.47%
	Walleye	5.88%
	Common Carp	2.94%
	Brook Trout	2.94%
	Channel Catfish	2.94%
	Lake Trout	2.94%
	Bass	2.94%
	Sauger	1.47%
	Black Crappie	1.47%
	Bluegill	1.47%
	Largemouth Bass	1.47%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
Smith River (7.04% of days fished in this Region.)		
	Trout	58.74%
	Rainbow Trout	17.13%
	Brown Trout	14.69%
	Whitefish	2.80%
	Brook Trout	1.40%
	Burbot	0.70%
	Kokanee salmon	0.35%
	Arctic Grayling	0.35%
Sun River (4.23% of days fished in this Region.)		
	Trout	51.74%
	Rainbow Trout	19.19%
	Cutthroat Trout	9.30%
	Nothern Pike	4.07%
	Brown Trout	2.91%
	Arctic Grayling	1.74%
	Brook Trout	1.16%
	Bass	0.58%
Teton River (0.54% of days fished in this Region.)		
	Trout	40.91%
	Rainbow Trout	27.27%
	Cutthroat Trout	9.09%
	Goldeye	4.55%
Upper Milk River (0.17% of days fished in this Region.)		
	Nothern Pike	28.57%
Upper Missouri River (44.77% of days fished in this Region.)		
	Trout	36.50%
	Walleye	27.87%
	Rainbow Trout	14.29%
	Yellow Perch	12.37%
	Brown Trout	1.59%
	Bass	0.99%
	Burbot	0.60%
	Lake Trout	0.38%
	Kokanee salmon	0.33%
	Common Carp	0.27%
	Salmon	0.16%
	Paddlefish	0.11%
	Channel Catfish	0.05%
	Cutthroat Trout	0.05%
<b>Region:</b>	<b>5</b>	
Bighorn River (39.62% of days fished in this Region.)		
	Trout	61.85%
	Brown Trout	18.19%
	Rainbow Trout	7.48%
	Channel Catfish	1.56%
	Walleye	1.56%
	Bass	1.35%
	Smallmouth Bass	1.25%
	Common Carp	1.04%
	Cutthroat Trout	0.42%
	Sauger	0.31%
	Burbot	0.10%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
<b>Middle Yellowstone River (9.18% of days fished in this Region.)</b>		
	Channel Catfish	35.87%
	Bass	18.39%
	Trout	11.66%
	Smallmouth Bass	4.48%
	Largemouth Bass	4.48%
	Goldeye	3.14%
	Rainbow Trout	3.14%
	Common Carp	1.79%
	Brown Trout	1.35%
	Crappie	0.90%
	Bluegill	0.45%
	Sauger	0.45%
	Walleye	0.45%
<b>Musselshell River (1.85% of days fished in this Region.)</b>		
	Trout	46.67%
	Rainbow Trout	13.33%
	Channel Catfish	11.11%
	Brown Trout	8.89%
	Bass	6.67%
	Walleye	4.44%
	Northern Pike X Muskie Hybrid	2.22%
<b>Upper Yellowstone River (49.26% of days fished in this Region.)</b>		
	Trout	59.87%
	Rainbow Trout	8.28%
	Brown Trout	6.69%
	Walleye	6.10%
	Cutthroat Trout	5.60%
	Brook Trout	3.01%
	Golden Trout	0.50%
	Bass	0.42%
	Common Carp	0.33%
	Yellow Perch	0.17%
	Channel Catfish	0.08%
	Largemouth Bass	0.08%
	Whitefish	0.08%
<b>Region:</b>	<b>6</b>	
<b>Fort Peck Reservoir (62.32% of days fished in this Region.)</b>		
	Walleye	46.78%
	Nothern Pike	10.86%
	Salmon	7.10%
	Paddlefish	6.57%
	Lake Trout	5.23%
	Channel Catfish	4.29%
	Trout	1.61%
	Bass	1.07%
	Rainbow Trout	0.27%
<b>Lower Milk River (1.84% of days fished in this Region.)</b>		
	Channel Catfish	68.18%
	Walleye	22.73%
<b>Lower Missouri River (2.76% of days fished in this Region.)</b>		
	Walleye	42.42%
	Nothern Pike	27.27%
	Cutthroat Trout	12.12%
	Bull Trout	6.06%
	Channel Catfish	3.03%
	Trout	3.03%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
<b>Middle Milk River (18.30% of days fished in this Region.)</b>		
	Walleye	46.12%
	Trout	22.83%
	Nothern Pike	13.24%
	Rainbow Trout	7.31%
	Brook Trout	3.65%
	Cutthroat Trout	1.83%
	Bluegill	1.37%
	Smallmouth Bass	0.91%
	Brown Trout	0.46%
	Yellow Perch	0.46%
<b>Missouri River - Judith (0.67% of days fished in this Region.)</b>		
	Walleye	25.00%
	Channel Catfish	25.00%
	Brook Trout	12.50%
	Trout	12.50%
	Bass	12.50%
<b>Missouri River - Poplar (10.44% of days fished in this Region.)</b>		
	Walleye	42.40%
	Rainbow Trout	9.60%
	Channel Catfish	4.00%
	Paddlefish	4.00%
	Trout	4.00%
	Salmon	3.20%
	Nothern Pike	1.60%
	Largemouth Bass	0.80%
	Yellow Perch	0.80%
<b>Upper Milk River (3.59% of days fished in this Region.)</b>		
	Walleye	62.79%
	Nothern Pike	11.63%
	Trout	6.98%
	Rainbow Trout	6.98%
	Channel Catfish	4.65%
<b>Region:</b>	<b>7</b>	
<b>Little Missouri River (0.46% of days fished in this Region.)</b>		
	Trout	33.33%
<b>Lower Yellowstone River (61.26% of days fished in this Region.)</b>		
	Channel Catfish	44.00%
	Walleye	19.50%
	Paddlefish	12.50%
	Bass	6.25%
	Smallmouth Bass	4.00%
	Largemouth Bass	1.75%
	Sauger	1.50%
	Bluegill	1.50%
	Trout	1.25%
	Yellow Perch	0.50%
	Brown Trout	0.50%
	Nothern Pike	0.25%
	Sucker	0.25%
	Sturgeon	0.25%
	Rainbow Trout	0.25%
	Bull Trout	0.25%
<b>Powder River (2.76% of days fished in this Region.)</b>		
	Channel Catfish	94.44%

**Table 11. Percent of Trips for each Primary Species Fished for - by Region and Drainage and Angler Survey License Year 2017 (continued).**

Drainage	Primary Species Fished for	Percent of days for species
Tongue River	(35.53% of days fished in this Region.)	
	Crappie	34.05%
	Walleye	31.47%
	Channel Catfish	11.21%
	Trout	5.60%
	Smallmouth Bass	3.45%
	Bass	3.02%
	Common Carp	0.86%
	Cutthroat Trout	0.43%

### **3.5 FISHING ACCESS SITE USE**

Anglers were asked to indicate if they used an FWP Fishing Access Site (FAS) to access the water they fished. If they answered in the affirmative, they were then asked to provide the name of the FAS. The FAS icon (a fish facing a hook and line) accompanied this question to try to make it clear which sites were FWP sites. The location of many FASs was increased on the maps for the 2017 survey relative to the 2015 survey, also to try to help the angler answer the question correctly.

In terms of angler days, 51.7% and 58.0% of residents and nonresidents, respectively, indicated that they used an FWP FAS. These numbers were determined to be inaccurate however, because when many of the anglers identified the access site, it was in fact an access site provided by other public agencies. In order to quantify this error, the names of access sites which were provided were evaluated for correctness. Overall, 71.4% of resident angler days and 80.8% of non-resident angler days were attributed to an FWP site, while the remainder was attributed to sites owned by other agencies, access from bridge rights-of-way, or even private property. These “correction factors” were then used to estimate the actual percentage of angler days using FWP FASs, as follows:

Non-residents:  $0.580 \times 0.808 = .469$  or 46.9% of non-resident angler days occurring through the use of a Montana FWP FAS

Residents:  $0.517 \times 0.714 = 0.369$  or 36.9% of resident angler days occurring through the use of a Montana FWP FAS.

The initial question in this survey was similar to one that was asked as part of the 2007 statewide mail survey, where the angler was asked if they had used a bridge, fishing access site, or other means to gain access to the fishery. Overall, 5.1% of the access was from bridges, and 55.5% of the access was from fishing access sites. Respondents in the 2007 survey were not asked to identify the name of the access site, so there were undoubtedly a number of respondents that gained access at sites not provided by FWP.

### 3.6 ANGLER ACCESS

On the questionnaire, anglers were asked if they had mostly fished from shore, boat, both shore and boat, or ice. When considered on a drainage basis (Table 12), the Bighorn River had the lowest percentage (14.55%) fishing from shore. While the Missouri River – Dearborn had the highest percent fishing from boats (61.68%) when considering only those only drainages with more than a handful of fishing days (the Little Missouri River only had 3 total days fished). Conversely, the Boulder River drainage had the most fishing from shore (100%) and the least fishing from a boat (0%). For those drainages where there was ice fishing, the drainages with the least were the Bighorn River and the Bitterroot River (0.16 and 0.17%), while the Clark – Flint/Rock, Fort Peck Reservoir, Jefferson River, Red Rock, and Ruby drainages all had greater than 10% of the anglers fishing through the ice.

Region 6 had the lowest percentage of anglers fishing from shore (29.6%) while Regions 3 and 7 had the greatest percent (55.25% and 55.74%) (Table 13). In terms of fishing from a boat, Regions 2, 3 and 5 were the lowest (30.24, 30 and 30.34%), while Region 6 was highest at 53.26%. Region 5 had the lowest level of ice anglers (0.33%), while Region 6 had the highest level (10.28%). Residents were more slightly more likely to fish from shore (45.23%) than were non-residents (42.05%) (Table 14). Residents and nonresidents were equally likely to fish from a boat (39.71 and 39.54%), but nonresidents were slightly more likely to fish from both a boat and shore (11.97%) than residents (9.88%). Appendix G provides percentage of anglers accessing the water by each of these types for individual waterbodies.

**Table 12. Angler types of fishing by drainage (total days fished and percentages).**

Drainage Name	Shore	Boat	Shore/ Boat	Ice	Ice /Shore	Total
Beaverhead River (2017)	104 (64.2%)	36 (22.22%)	20 (12.35%)			162
Belt Creek (2017)	28 (93.33%)	2 (6.67%)				30
Big Hole River (2017)	266 (42.7%)	305 (48.96%)	47 (7.54%)	1 (0.16%)		623
Bighorn River (2017)	140 (14.55%)	480 (49.9%)	334 (34.72%)			962
Bitterroot River (2017)	304 (53.05%)	181 (31.59%)	38 (6.63%)	1 (0.17%)		573
Blackfoot River (2017)	254 (42.33%)	246 (41%)	74 (12.33%)	19 (3.17%)		600
Boulder River (2017)	23 (100%)					23
Clark Fork River - Flint / Rock (2017)	427 (57.01%)	175 (23.36%)	35 (4.67%)	108 (14.42%)		749
Flathead River (2017)	241 (23.58%)	553 (54.11%)	108 (10.57%)	75 (7.34%)		1022
Fort Peck Reservoir (2017)	127 (16.91%)	457 (60.85%)	60 (7.99%)	102 (13.58%)		751
Gallatin River (2017)	549 (89.27%)	25 (4.07%)	16 (2.6%)	19 (3.09%)		615
Jefferson River (2017)	53 (44.17%)	53 (44.17%)	1 (0.83%)	13 (10.83%)		120
Kootenai River (2017)	160 (37.38%)	218 (50.93%)	24 (5.61%)	25 (5.84%)		428
Little Missouri River (2017)	1 (33.33%)	2 (66.67%)				3
Lower Clark Fork River (2017)	184 (36.15%)	290 (56.97%)	26 (5.11%)	9 (1.77%)		509
Lower Milk River (2017)	20 (90.91%)	2 (9.09%)				22
Lower Missouri River (2017)	22 (66.67%)	10 (30.3%)		1 (3.03%)		33
Lower Yellowstone River (2017)	268 (67%)	102 (25.5%)	28 (7%)	1 (0.25%)		400
Madison River (2017)	953 (51.63%)	562 (30.44%)	278 (15.06%)	27 (1.46%)		1846
Marias River (2017)	53 (29.12%)	118 (64.84%)	1 (0.55%)	5 (2.75%)		182
Middle Clark Fork River (2017)	312 (56.83%)	170 (30.97%)	57 (10.38%)			549
Middle Milk River (2017)	112 (51.14%)	82 (37.44%)	10 (4.57%)	13 (5.94%)		219
Middle Yellowstone River (2017)	176 (78.92%)	33 (14.8%)	9 (4.04%)			223

**Table 12. Angler types of fishing by drainage (total days fished and percentages) (continued).**

Missouri River - Dearborn (2017)	278 (24.32%)	705 (61.68%)	144 (12.6%)			1143
Missouri River - Judith (2017)	210 (63.64%)	76 (23.03%)	17 (5.15%)	3 (0.91%)		330
Missouri River - Poplar (2017)	56 (44.8%)	59 (47.2%)	3 (2.4%)	7 (5.6%)		125
Musselshell River (2017)	86 (76.11%)	18 (15.93%)	2 (1.77%)	7 (6.19%)		113
Powder River (2017)	18 (100%)					18
Red Rock River (2017)	66 (47.48%)	51 (36.69%)	6 (4.32%)	14 (10.07%)	1 (0.72%)	139
Ruby River (2017)	67 (67%)	15 (15%)	4 (4%)	12 (12%)	1 (1%)	100
Smith River (2017)	63 (22.03%)	132 (46.15%)	78 (27.27%)	5 (1.75%)		286
South Fork Flathead River (2017)	85 (63.91%)	36 (27.07%)	12 (9.02%)			133
Sun River (2017)	123 (71.51%)	21 (12.21%)	18 (10.47%)	6 (3.49%)		172
Swan River (2017)	27 (30.34%)	51 (57.3%)	4 (4.49%)	3 (3.37%)		89
Teton River (2017)	14 (63.64%)	4 (18.18%)	3 (13.64%)	1 (4.55%)		22
Tongue River (2017)	77 (33.19%)	113 (48.71%)	23 (9.91%)	19 (8.19%)		232
Upper Clark Fork River (2017)	107 (77.54%)	17 (12.32%)	14 (10.14%)			138
Upper Milk River (2017)	17 (34%)	27 (54%)	4 (8%)	2 (4%)		50
Upper Missouri River (2017)	552 (29.04%)	1037 (54.55%)	112 (5.89%)	160 (8.42%)	4 (0.21%)	1901
Upper Yellowstone River (2017)	1058 (60.39%)	431 (24.6%)	228 (13.01%)	6 (0.34%)		1752

**Table 13. Angler types of fishing by Region (days fished and percentages).**

Region (Year)	Shore	Boat	Shore/ Boat	Ice	Ice /Shore	Total
1 (2017)	697 (31.96%)	1148 (52.64%)	174 (7.98%)	112 (5.14%)		2181
2 (2017)	1404 (53.81%)	789 (30.24%)	218 (8.36%)	128 (4.91%)		2609
3 (2017)	2357 (55.25%)	1280 (30%)	486 (11.39%)	87 (2.04%)	2 (0.05%)	4266
4 (2017)	1321 (32.57%)	2088 (51.48%)	370 (9.12%)	186 (4.59%)	4 (0.1%)	4056
5 (2017)	1184 (48.8%)	736 (30.34%)	464 (19.13%)	8 (0.33%)		2426
6 (2017)	354 (29.6%)	637 (53.26%)	75 (6.27%)	123 (10.28%)		1196
7 (2017)	364 (55.74%)	217 (33.23%)		51 (7.81%)	20 (3.06%)	

653

**Table 14. Angler types of fishing by residency within the state (percent is based on the total number of days which includes null responses).**

License Year	Residency	Shore	Boat	Shore/ Boat	Ice	Ice /Shore	Total Days
2017	R	5267 (45.23%)	4625 (39.71%)	1151 (9.88%)	375 (3.22%)	6 (0.05%)	11646
2017	N	2414 (42.05%)	2270 (39.54%)	687 (11.97%)	289 (5.03%)		5741

## **4.0 DISCUSSION AND ANALYSIS**

### **4.1 SCOPE OF ANGLING PRESSURE**

The statewide angling pressure survey was conducted from March 2017 through February 2018. Estimates of pressure by residents and nonresidents were for licensed anglers only. This would encompass anglers 12 years of age and older. Spence (1971) found that the unlicensed angler (ages 2- 14) comprised 9% of the pressure on Rock Creek near Missoula. Peterson (1970) found that the unlicensed angler accounted for 21% and 19% of the total number of anglers on Big Spring Creek near Lewistown during 1968 and 1969 respectively. On the Bighorn River near Hardin, Stevenson (1975) found that the unlicensed angler accounted for 14.2% and 15.8% of the total number of anglers during 1972 and 1973 respectively. Fredenberg (1984) found that 10% of the anglers on Bighorn Lake and 13% of the anglers on the Yellowtail Afterbay were unlicensed. It appears that the unlicensed angler makes up between 9% and 21% of the fishing pressure depending on the type of water being fished.

Some angling pressure was obtained on Indian reservations and National Parks within Montana. This pressure was incidental to other fishing trips and only included those anglers that had purchased a Montana fishing license. Since national parks and reservations require different licensing, a complete pressure estimate of waters within those regions was not obtained.

### **4.2 ACCURACY**

#### **4.2.1 Sampling**

Samples were drawn and questionnaires sent to the selected anglers as soon as possible. This was usually 1-2 days after the wave being sampled had ended (see discussion under Methods for details). The use of ALS allows for samples to be drawn right after the month has ended which minimizes inaccurate responses resulting from memory loss over time.

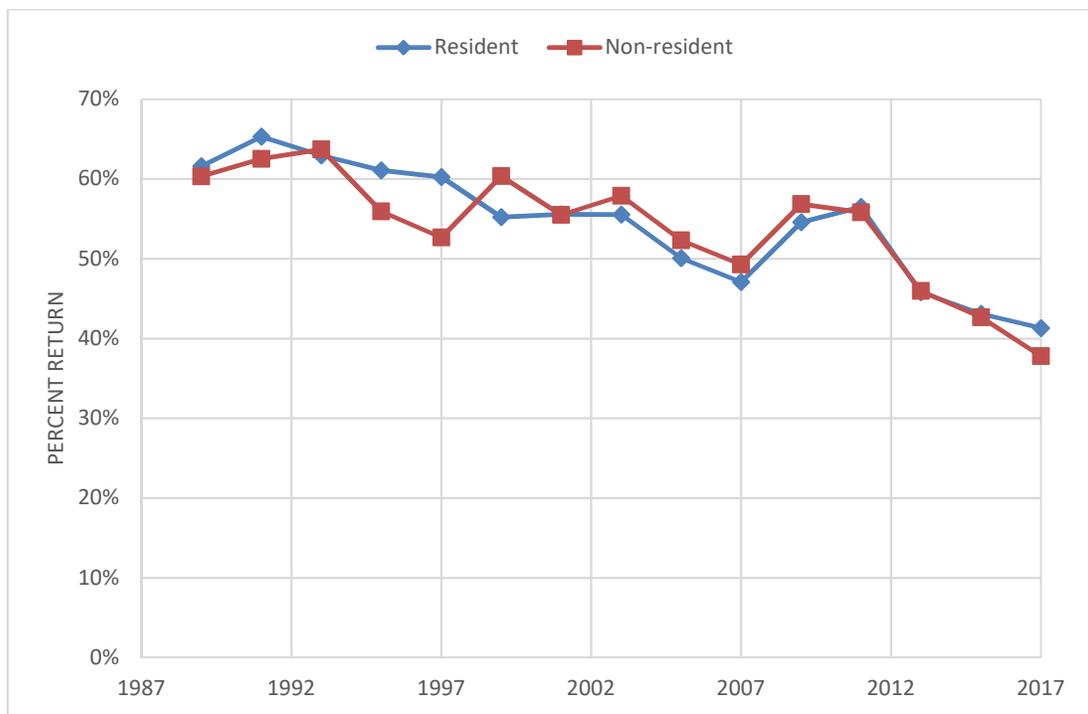
### **4.3 RETURN RATES**

Return rates ( $\#$  of respondents / [ $\#$  of surveys sent - nondeliverables] \* 100) were calculated for every wave by residency (Table 2). The weighted average total return rates for residents and nonresidents were 41.3% and 37.8% respectively. These are the lowest rates since the surveys first began in 1983, and also reflect a consistent downward trend over that time period (Chart 7). Low return rates do reduce the number of trips reported for individual waterbodies, and increase the associated error surrounding the pressure estimate. Even more problematic is the possibility that the lower return rates are causing or a result of a non-response bias, in which license holders with certain common traits are disproportionately choosing to not participate in the survey. If these non-

respondents are more or less likely to be fishing than are the respondents, then it may be affecting the accuracy of the pressure estimates.

Due to the trend of lower response rates, a phone survey of a sub-set of non-respondents from the upcoming 2019/20 mail survey will be conducted to determine if a non-response bias is occurring that may affect pressure estimates. Specifically, license holders will be asked if they fished during the month and then to identify waters fished and number of days fishing on each water.

**Chart 7. Return rate of mail questionnaires for residents and non-residents from 1989 to 2017.**



#### **4.4 NUMBER OF LICENSED ANGLERS VS PRESSURE**

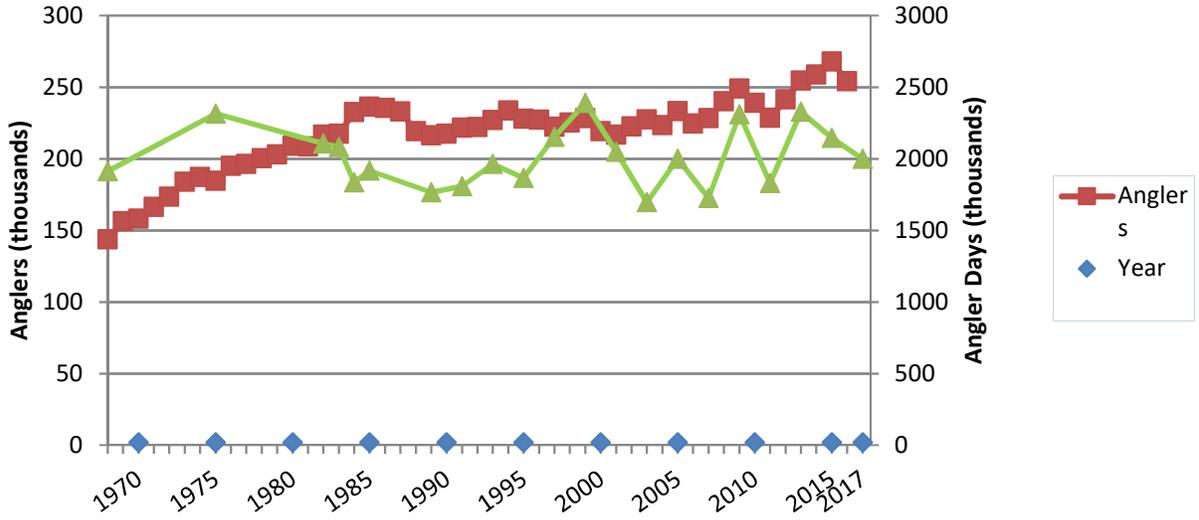
The number of resident anglers showed steady increases from 1967 to 1985 (Chart 8, Table 14). Since 1985 when there were 236,455 licensed anglers, the number has remained within 10%, reaching a low of 216,412 in 1989 and a high of 267,846 in 2015 (numbers for 2017 were not available at the time of this writing). The notable decline from 2010 (238,942) to 2011 (228,589) may be theorized to be due to stormy weather in the early summer of 2011 that kept many people indoors. Nonresident licensed angler numbers showed strong growth between 1965 and peak numbers in 2002 (Chart 9), increasing from 51,798 to 163,109 during the period. Nonresident license sales then dropped markedly from 2002 and 2011, when 126,617 anglers purchased licenses, but has rebounded and increased every year since then to a high of 192,364 in 2016.

Comparing statewide angling use from the mail survey versus number of anglers shows general agreement between the two variables, at least in terms of long-term trends. The relationship between angler use and number of anglers has remained remarkably consistent for resident anglers (Chart 8). The trend for non-resident anglers is much different. Number of licensed anglers peaked in 2002 and then declined to a 21-year low in 2011. Since then numbers of licensed anglers have increased every year. Conversely the angling pressure has increased by 70% since 2007 (Chart 9) and indicates a trend toward non-residents spending more days fishing in Montana.

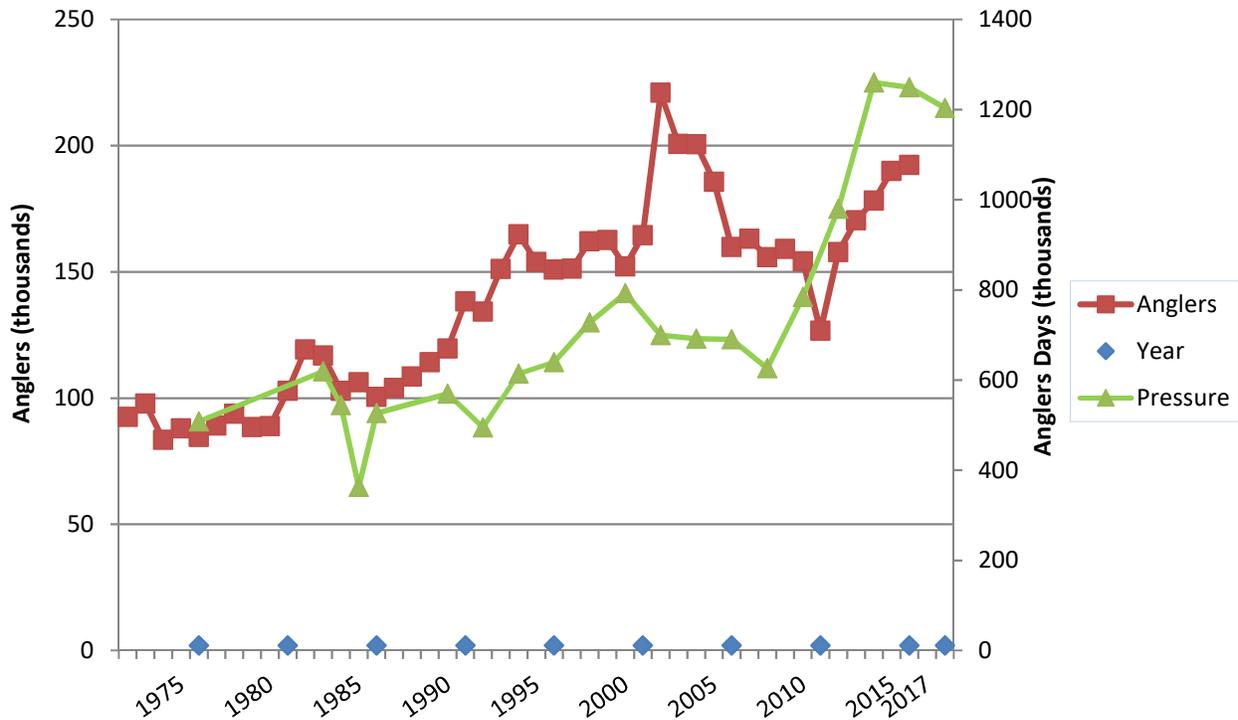
**Table 15. - Number of licensed anglers from 1982 through 2015 by residency.**

<b>Year</b>	<b>Resident Anglers</b>	<b>Nonresident Anglers</b>
1982	216,689	119,293
1983	217,483	116,875
1984	232,485	102,843
1985	236,455	106,304
1986	235,403	100,456
1987	233,111	103,936
1988	219,299	108,471
1989	216,412	114,254
1990	217,370	119,611
1991	221,723	138,243
1992	222,186	134,212
1993	226,992	151,192
1994	233,630	164,841
1995	227,849	153,887
1996	227,282	150,881
1997	222,442	151,244
1998	222,329	162,067
1999	228,419	162,572
2000	219,282	152,158
2001	216,858	164,470
2002	222,510	220,946
2003	227,562	200,647
2004	223,560	200,562
2005	233,295	185,689
2006	224,526	159,846
2007	228,415	163,088
2008	240,030	155,858
2009	248,945	159,032
2010	238,942	154,184
2011	228,589	126,617
2012	241,519	157,763
2013	254,473	170,415
2014	258,846	178,290
2015	267,846	189,916
2016	254,016	192,364

**Chart 8. Angling pressure versus number of anglers for residents from 1965 to 2017.**



**Chart 9. Angling pressure versus number of anglers for nonresidents from 1965 to 2017.**





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## **6.0 EXAMPLES OF QUESTIONNAIRES**

The August 2017 questionnaire is an example of an initial mail form, while the February 2018 questionnaire is an example of a re-mail form.



## 7.0 BOUNDARIES OF WATERS BROKEN INTO SECTIONS

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>	
BEAVER CREEK	SEC 01	15-0280	MOUTH	BEAVER CREEK RES.
	SEC 02	15-0320	BEAVER CREEK RES	BEAR PAW LAKE
	SEC 03	15-0340	BEAR PAW LAKE	ROCKY BOY INDIAN R
	SEC 04	15-0360	ROCKY BOY INDIAN RES	HEADWATERS
BIG HOLE R.	SEC 01	02-0425	MOUTH	DIVIDE CREEK
	SEC 02	02-0450	DIVIDE CREEK	PINTLAR CREEK
	SEC 03	02-0475	PINTLAR CREEK	HEADWATERS
BIG SPRING CR.	SEC 01	16-0301	JUDITH RIVER (MOUTH)	COTTONWOOD CREEK
	SEC 02	16-0310	COTTONWOOD CREEK	HEADWATERS
BIGHORN RIVER	SEC 01	22-0490	MOUTH	LITTLE BIGHORN RIVER
	SEC 02	22-0495	L.BIGHORN R	BIG HORN FAS (ACCESS CR)
	SEC 03	22-0496	BIG HORN FAS (ACCESS CR)	AFTERBAY
BITTERROOT R.	SEC 01	03-0475	MOUTH	BIG CREEK
	SEC 02	03-0500	BIG CREEK	HEADWATERS
BLACKFOOT R.	SEC 01	04-0600	MOUTH	CLEARWATER RIVER
	SEC 02	04-0630	CLEARWATER RIVER	N FK BLACKFOOT RIVER
	SEC 03	04-0645	N FK BLACKFOOT RIVER	ARRASTRA CREEK
	SEC 04	04-0660	ARRASTRA CREEK	HEADWATERS
BOULDER RIVER	SEC 01	22-0742	MOUTH	BOULDER FALLS (NAT BRDG)
	SEC 02	22-0756	BOULDER FALLS (NAT BRDG)	BRIDGE CREEK
	SEC 03	22-0770	BRIDGE CREEK	HEADWATERS
CLARK FORK R.	SEC 01	05-1440	THOMPSON RIVER	FLATHEAD RIVER
	SEC 02	05-1456	FLATHEAD RIVER	BITTERROOT RIVER
	SEC 03	06-1118	BITTERROOT RIVER	ROCK CREEK
	SEC 04	06-1121	ROCK CREEK	LITTLE BLACKFOOT R
	SEC 05	06-1140	LITTLE BLACKFOOT R	HEADWATERS
CLARKS FK YELLOWSTONE RIVER	SEC 01	22-1162	MOUTH	BRIDGER
	SEC 02	22-1176	BRIDGER	WYOMING BORDER
	SEC 03	22-1190	WYOMING BORDER	HEADWATERS
CROW CREEK	SEC 01	07-1000	MOUTH	LOWER CROW RESERVOIR
	SEC 02	07-1020	LOWER CROW RESERVOIR	HEADWATERS
CUT BANK CREEK	SEC 01	14-1080	MOUTH	CUT BANK
	SEC 02	14-1120	CUT BANK	GLACIER PARK
FLATHEAD RIVER	SEC 01	07-1540	MOUTH	FLATHEAD LAKE
	SEC 02	07-1560	FLATHEAD LAKE	S FK FLATHEAD R
GALLATIN RIVER	SEC 01	09-2090	MOUTH	E GALLATIN RIVER
	SEC 02	09-6878	E GALLATIN RIVER	SPANISH CREEK
	SEC 03	09-6916	SPANISH CREEK	HEADWATERS

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>	
HYALITE CREEK	SEC 01	09-2546	MOUTH	HYALITE RESERVOIR
	SEC 02	09-6802	HYALITE RESERVOIR	HYALITE LAKE
JUDITH RIVER	SEC 01	16-1800	MOUTH	PLUM CREEK
	SEC 02	16-1820	PLUM CREEK	HEADWATERS
LITTLE BIGHORN RIVER				
	SEC 01	22-3654	MOUTH	LODGE GRASS CREEK
	SEC 02	22-3668	LODGE GRASS CREEK	HEADWATERS
LITTLE BLACKFOOT R				
	SEC 01	06-3772	MOUTH	ELLISTON
	SEC 02	06-3591	ELLISTON	HEADWATERS
MADISON RIVER				
	SEC 01	13-3400	MOUTH	ENNIS DAM
	SEC 02	13-3440	ENNIS LAKE	HEBGEN DAM
	SEC 03	13-3520	HEBGEN LAKE	YELLOWSTONE PARK
MARIAS RIVER				
	SEC 01	14-3240	MOUTH	TIBER DAM
	SEC 02	14-3280	LAKE ELWELL	CUT BANK CREEK
MILK RIVER	SEC 01	15-2680	MOUTH	HINSDALE
	SEC 02	15-2720	HINSDALE	MALTA
	SEC 03	15-2760	MALTA	HAVRE
	SEC 04	15-2800	HAVRE	FRESNO DAM
	SEC 05	15-2840	FRESNO RESERVOIR	CANADA
	SEC 06	15-2880	CANADA	MIDDLE & SOUTH FORKS
MISSOURI RIVER				
	SEC 01A	16-2420	N DAKOTA BORDER	POPLAR RIVER
	SEC 01B	16-2421	POPLAR RIVER	MILK RIVER
	SEC 05	16-2500	MILK RIVER	FORT PECK DAM
	SEC 06A	16-2521	FT PECK RES	BLAIN/CHOUT CO LINE
	SEC 06B	16-2522	BLAIN/CHOUT CO LINE	MARIAS RIVER
	SEC 07	17-4864	MARIAS RIVER	MORONY DAM
	SEC 08	17-4880	MORONY DAM	CASCADE BRIDGE
	SEC 09	17-4896	CASCADE BRIDGE	HOLTER DAM
	SEC 10A	17-4913	HOLTER LAKE	HAUSER DAM
	SEC 10B	17-4914	HAUSER LAKE	CANYON FERRY DAM
	SEC 11	17-4928	CANYON FERRY RES	TOSTON DAM
	SEC 12	17-4944	TOSTON DAM	HEADWATERS
MUSSELSHELL RIVER				
	SEC 01	18-4320	MOUTH	RT 3 BRIDGE NEAR LAVINA
	SEC 02	18-4350	RT 3 BRIDGE NEAR LAVINA	HEADWATERS
POPLAR RIVER	SEC 01	16-2820	MOUTH	E FK POPLAR RIVER
	SEC 02	16-2375	E FK POPLAR RIVER	CANADA
PRYOR CREEK	SEC 01	22-4802	MOUTH	PRYOR
	SEC 02	22-4816	PRYOR	HEADWATERS

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>	
RED ROCK RIVER				
	SEC 01	01-6140	MOUTH	LIMA DAM
	SEC 02	01-6160	LIMA RESERVOIR	UPPER RED ROCK LK
ROCK CREEK	SEC 01	06-5263	MOUTH	HOGBACK CREEK
	SEC 02	06-5282	HOGBACK CREEK	HEADWATERS
ROCK CREEK	SEC 01	22-4928	MOUTH	W FK (CHROME CAMP)
	SEC 02	22-4956	W FK (CHROME CAMP)	HEADWATERS
RUBY RIVER	SEC 01	01-6360	MOUTH	RUBY RESERVOIR
	SEC 02	01-6380	RUBY RESERVOIR	HEADWATERS
SHIELDS RIVER				
	SEC 01	22-5334	MOUTH	CLYDE PARK
	SEC 02	22-5348	CLYDE PARK	WILSALL
	SEC 03	22-5362	WILSALL	HEADWATERS
SMITH RIVER	SEC 01	17-6816	MOUTH	HOUND CREEK
	SEC 02	17-6832	HOUND CREEK	CAMP BAKER
	SEC 03	17-6833	CAMP BAKER	HEADWATERS
STILLWATER R	SEC 01	22-6104	MOUTH	WEST FORK (NYE)
	SEC 02	22-6118	WEST FORK (NYE)	HEADWATERS
SUN RIVER	SEC 01	20-6050	MOUTH	MUDDY CREEK
	SEC 02	20-6100	MUDDY CREEK	GIBSON DAM
SWAN RIVER	SEC 01	07-4560	MOUTH	SWAN LAKE
	SEC 02	07-4580	SWAN LAKE	HEADWATERS
TETON RIVER	SEC 01	14-6000	MOUTH	CHOTEAU
	SEC 02	14-6040	CHOTEAU	HEADWATERS
THOMPSON RIVER				
	SEC 01	05-7248	MOUTH	BEND RANGER STATION
	SEC 02	05-7264	BEND RANGER STATION	HEADWATERS
TONGUE RIVER				
	SEC 01	21-1150	MOUTH	BEAVER CREEK
	SEC 02	21-1200	BEAVER CREEK	TONGUE RIVER DAM
	SEC 03	21-1250	TONGUE RIVER RES	WYOMING BORDER
W FK STILLWATER RIVER				
	SEC 01	22-6664	MOUTH	IRON CREEK
	SEC 02	22-6678	IRON CREEK	HEADWATERS
YAAK RIVER	SEC 01	11-7740	MOUTH	FALLS
	SEC 02	11-7760	FALLS	HEADWATERS
YELLOWSTONE RIVER				
	SEC 01	21-1350	N DAKOTA BORDER	POWDER RIVER
	SEC 02	21-1400	POWDER RIVER	BIGHORN RIVER
	SEC 03	22-7001	BIGHORN RIVER	HUNTLEY DIVERSION

<u>STREAM NAME</u>	<u>WATER CODE</u>	<u>DOWNSTREAM POINT</u>	<u>UPSTREAM POINT</u>
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YELLOWSTONE RIVER (con't)

SEC 04	22-7015	HUNTLEY DIVERSION	CLARKS FORK RIVER
SEC 05	22-7028	CLARKS FORK RIVER	STILLWATER RIVER
SEC 06A	22-7043	STILLWATER RIVER	REED POINT BRIDGE
SEC 06B	22-7044	REED POINT BRIDGE	BOULDER RIVER
SEC 07A	22-7057	BOULDER RIVER	SPRINGDALE
SEC 07B	22-7058	SPRINGDALE	SHIELDS RIVER
SEC 08	22-7071	SHIELDS RIVER	PINE CREEK
SEC 09A	22-7072	PINE CREEK	EMIGRANT BRIDGE
SEC 09B	22-7073	EMIGRANT BRIDGE	TOM MINER CREEK
SEC 10	22-7084	TOM MINER CREEK	GARDINER